Address
ON
OUR MEDICAL LITERATURE.

Delivered at the International Medical Congress.

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WHEN I was surprised by the honour of an invitation to address this Congress, my first thought was that it must be declined; for the simple but sufficient reason that I had nothing to say that would be worth occupying the time of such an assemblage as it was evident this would be. But while thinking over the matter, and looking absent-mindedly at a shelf of catalogues and a pile of new books and journals awaiting examination, it occurred to me that perhaps some facts connected with our medical literature, past and present, from the point of view of the reader, librarian, and bibliographer, rather than from that of the writer or practitioner, might be of sufficient interest to you to warrant an attempt to present them; and, the wish being probably father to the thought, I decided to make the trial.

When I say "Our Medical Literature" it is not with reference to that of any particular country or nation, but to that which is the common property of the educated physicians of the world as represented here to-day—the literature which forms the intra- and inter-national bond of the medical profession of all civilised countries; and by virtue of which we, who have come hither from the far West and the farther East, do not now meet for the first time as strangers, but as friends, having common interests, and though of many nations, a common language, and whose thoughts are perhaps better known to each other than to some of our nearest members.

It is usual to estimate that about one-thirtieth part of the whole mass of the world's literature belongs to medicine and its allied sciences. This corresponds very well to the results obtained from an examination of bibliographies and catalogues of the principal medical libraries. It appears from this that our medical literature now forms a little over 120,000 volumes properly so called, and about twice that number of pamphlets, and that this accumulation is now increasing at the rate of about 1500 volumes and 2500 pamphlets yearly.

Let us consider the character of this annual growth somewhat in detail, first giving some figures as to the number of those who are producing it.

There are at the present time scattered over the earth about 180,000 medical men, who, by a liberal construction of the phrase, may be said to be educated—that is, who have some kind of a diploma, and for whose edification this current medical literature is produced. Of this number about 11,600 are producers of, or contributors to, this literature, being divided as follows:—United States, 2800; France and her Colonies, 2600; the German Empire and Austro-Hungary, 2300; Great Britain and her Colonies, 2000; Italy, 600; Spain, 300; all others, 1000. These figures should be considered in connexion with the number of physicians in each country; but this I can only give approximately, as follows:—United States, 65,000; Great Britain and her Colonies, 35,000; Germany and Austro-Hungary, 32,000; France and her Colonies, 26,000; Italy, 10,000; Spain, 5000; all others, 17,000.

It will be seen from these figures that the number of physicians who are writers is proportionately greatest in France and least in the United States. As regards France, this is largely due to the requirement of a printed thesis for graduation, which of itself adds between six and seven hundred annually to the number of writers.

Excluding popular medicine, pathies, pharmacy, and dentistry, all of which were included in the figures for the annual product just given, we find that the contributions to medicine, properly so called, form a little over 1000 volumes and 1600 pamphlets yearly.

For 1879 Rupprecht's Bibliotheca gives as the total number of new medical books, excluding pamphlets, periodicals, and transactions, 419; divided as follows—viz.: France, 187; Germany, 110; England, 43; Italy, 32; United States, 21; all others, 26. These figures are, however, too small, and especially so as regards Great Britain and the United States. The Index Medicus for the same year shows by analysis that the total number of medical books and pamphlets, excluding periodicals and transactions, was 1643, divided as follows: France, 541; Germany, 364; United States, 310; Great Britain, 182; all others, 246. This does not include the inaugural theses, of which 693 were published in France alone.

The special characteristics of the literature of the present day are largely due to journals and transactions, and this is particularly true in medicine. Our periodicals contain the most recent observations, the most original matter, and are the truest representations of the living thought of the day, and of the tastes and wants of the great mass of the medical profession, a large part of whom, in fact, read very little else. They form about one-half of the current medical literature, and in the year 1879 amounted to 655 volumes, of which the United States produced 156, Germany, 129, France, 122, Great Britain, 54, Italy, 65, and Spain, 24. This is exclusive of journals of pharmacy, dentistry, &c., and of journals devoted to medical sects and isms. In a table I have drawn out it appears that the total number of volumes of medical journals and transactions of all kinds was, for the year 1879, 850, and for 1880, 864. The figures for 1880 are too small, but the real increase is slight. During the year 1879, the total number of original articles in medical journals and transactions which were thought worth noting for the Index Medicus was a little over 20,000. Of these there appeared in American periodicals 4781, in French 4608, in German 4027, in English 3592, in Italian 1210, in Spanish 705, in all others 1248. The figures for 1880 are about the same. It will be seen that at present more of this class of literature appears in the English language than in any other, and that the number of journal contributions is greatest in the United States. The actual bulk of periodical literature is, however, greatest in Germany, owing to the greater average length of the articles. With regard to the mode of publication, I will only say that in all countries except Spain the greater number of medical periodicals are monthly, while in Spain they are semi-monthly. It is this periodical literature which, more than anything else, makes medicine cosmopolitan, and although as regards new discoveries or methods of treatment it is still somewhat farther from London or Berlin or Paris to New York than it is from New York to either of these places, the discrepancy is gradually becoming less.

Many of the medical journals are very short lived, but the total number is increasing. In 1879, 23 such journals ceased, but 60 new ones appeared, and in 1880 there were 24 deaths and 78 births in this department of literature. Over one-third of this fluctuation occurs in the United States alone, France being next in the scale, Spain third, and Italy fourth, while Great Britain is the most stable of all.

This merely quantitative classification gives of course no idea as to the character, and very little as to the value of the product. Let us now consider it by subjects. During 1879 there were published 167 books and pamphlets and 1543 articles relating to anatomy, physiology, and pathology—that is, to the biological or scientific side of medicine. Dividing this again by nations, we find that Germany produced a majority of the whole, France being second. The proportionate production by nations of this class of literature is perhaps better shown by an analysis of the bibliography of physiological literature for the year 1879, as published by the *Journal of Physiology*. This shows 59 treatises and 500 articles in German, 17 treatises and 227 articles in French, 5 treatises and 77 articles from Great Britain, 8 treatises and 41 articles from Italy, and 2 treatises and 24 articles from the United States. The number of authors for this product was—German, 393; French, 119; English, 59; Italian, 39; United States, 19; all others, 41. For the year 1880 the same journal reports 62 treatises and 452 articles from Germany, 23 treatises and 216 articles from France, 12 treatises and 76 articles from Great Britain, 4 treatises and 51 articles from Italy, 6 treatises and 25 articles from the United States, and 10 treatises and 31 articles from all other countries.[1]

[1] The difference between these figures and those of the Index Medicus is due, on the one hand, to the fact that the Journal of Physiology includes articles which are placed under other headings in the Index Medicus, and, on the other hand, to the fact that the Journal has a different standard of excellence from that of the Index, rejecting many articles which the latter must accept as original.

When we turn to the literature of the art, or practical side of the profession, the figures are decidedly different. We find over 1200 treatises and 18,000 journal articles which come under this head, and the order of precedence of countries as to quantity is: France, United States, Germany, Great Britain, Italy, and Spain. The tables I have constructed give still further subdivisions, showing by nations the number of works and journal articles upon the practice of medicine, surgery, obstetrics, hygiene, &c., for the years 1879 and 1880, and some of the figures will be found interesting. A marked increase has occurred in the literature of hygiene during the last two years, and this especially in England, France, Germany, and the United States. The literature of diseases of the nervous system, of ophthalmology, otology, dermatology, and gynæcology is also increasing more rapidly than that of the more general branches.

It would, of course, be extremely unscientific to use these figures as if they represented positively ascertained and comparable facts, the accuracy of which, as well as of the classification, could be verified. They represent merely the opinions of an individual—first, as to whether each treatise or pamphlet included in these statistics was worth noting, and second, as to how it should be classed. Had everything been indexed, the figures, for journal articles at least, might have been nearly doubled; while if the selection had been made by a more severe critic they might have been reduced one-half.

If I had to do the work again I should not obtain the same results. The prevailing error is that as regards journal articles the figures are too large, for some of those included are of so little value or interest that they are, I fear, never read by more than two persons.

Be that as it may, I think we can take them as indicating certain differences in the direction of work of the medical authors of the great civilised nations of the earth; but they must be considered as approximations only; and the statistical axiom must be remembered that the results obtained from a large number of facts are applicable to an aggregate of similar facts, but not to single cases. There will be a certain number of medical books and papers printed next year, just as there will be a certain number of children born—and as we can within certain limits predict the number of these births and the proportion of the sexes, or even of monsters—so we can within certain limits predict the amount and character of the literature that is yet to come, the ideas that are yet unborn. The differences are due to race, political organisation, and density of population. As Dr. Chadwick has pointed out in speaking of the statistics of obstetric literature, one of the chief causes of the multiplication of medical societies is geographical. "In England it is possible for those who are specially interested in gynæcology and obstetrics to attend the meetings of the Obstetrical Society of London, whereas in America the distances are so great that this is impossible." Speaking broadly we may say that at present Germany leads in scientific medicine both in quantity and quality of product, and that the rising generation of physicians are learning German physiology. But the seed has gone abroad and scientific work is receiving more and more appreciation everywhere.

Seven years ago Professor Huxley declared that if a student in his own branch showed power and originality he dared not advise him to adopt a scientific career, for he could not give him the assurance that any amount of proficiency in the biological sciences would be convertible into the most modest bread and cheese. To-day I think he might be bolder, for such a fear would hardly be justifiable—at all events in America, where such a man as is referred to could almost certainly find a place, bearing in mind the professor's remark that it is no impediment to an original investigator to have to devote a moderate portion of his time to giving instruction either in the laboratory or in the lecture room.

Within the last ten years the literature of France, Germany, Great Britain, and the United States has contained much with regard to medical education and the means for its improvement. In all these countries there is more or less dissatisfaction with the existing condition of things, although there is no general agreement as to the remedy. Solomon's question, "Wherefore is there a price in the hands of a fool to get wisdom, seeing he hath no heart to it?" is now easily answered, for even a fool knows that he must have the semblance of wisdom, and a diploma to imply it, if he is to succeed in the practice of medicine, but to ensure the value of a diploma as a proof of education is the difficulty. This evidence of discontent and tendency to change is a good sign. In these matters stillness means sleep or death—and the fact that a stream is continually changing its bed shows that its course lies through fertile alluvium and not through sterile lava or granite.

I have said that as regards scientific medicine we are at present going to school to Germany. This, however, is not the case with regard to therapeutics either external or internal—in regard to which I presume that the physicians of each nation are satisfied as to their own pre-eminence. At all events it is true that for the treatment of the common diseases a physician can obtain his most valuable instruction in his own country, among those whom he is to treat. Just as each individual is in some respects peculiar and unique, so that even the arrangement of the minute ridges and furrows at the end of his forefinger differs from that of all other forefingers, and is sufficient to identify him; and as the members of certain families require special care to guard against hæmorrhage, or insanity, or phthisis; so it is with nations and races. The experienced military surgeon knows this well, and in the United States, which is now the great mixing ground, illustrations of race peculiarities are familiar to every practitioner.

Neither the tendency nor the true value of this current medical literature can be properly estimated by attending to it alone. It is a part of the thought of the age—of that wonderful kaleidoscopic pattern which is unrolling before us, and must be judged in connexion with it. From several sources of high authority there have come of late years warnings and laments that science is becoming too utilitarian. For example, Prof. Du Bois-Reymond in his address upon civilisation and science, says that that side of science which is connected with the useful arts is steadily becoming more prominent, each generation being more and more bent on material interests. "Amid the unrest which possesses the civilised world men's minds live as it were from hand to mouth . . . . And if industry receives its impulse from science it also has a tendency to destroy science. In short, idealism is succumbing in the struggle with realism, and the kingdom of material interests is coming." Having laid down this rather pessimistic platform, he goes on to state that this is especially the case in America, which is the principal home of utilitarianism, and that it has become the custom to characterise as "Americanisation" the dreaded permeation of European civilisation by realism. If this characterisation is correct, it would seem that Europe is pretty thoroughly Americanised as regards attention to material interests and appreciation of practical results. But the truth of the picture seems to me doubtful. Science is becoming popular, even fashionable, and some of its would-be votaries rival the devotees of modern æstheticism in their dislike and fear of the sunlight of comprehensibility and common sense. The languid scientific swell who thinks it bad style to be practical, who takes no interest in anything but pure science, and makes it a point to refrain from any investigations which might lead to useful results lest he might be confounded with mere "practical men" or inventors, exists and has his admirers. We have such in medicine, and their number will increase.

The separation of biological study from practical medicine, which has of late years become quite marked in the literature of the subject, has its advantages and disadvantages. Thus far the former have far outweighed the latter, and both the science and the art of medicine have been promoted thereby. But are not the physiologists, or, as I believe they prefer to be called, the biologists, separating themselves too completely from medicine for the best interests of their own science, in that they are neglecting human pathology? In our hospital wards, and among our patients, nature is continually performing experiments which the most dexterous operator cannot copy in the laboratory; she is, as Professor Foster says, "a relentless and untrammelled vivisector, and there is no secret of the living frame which she has not, or will not, at some time or place, lay bare in misery and pain."

Now, while it is true that Professor Foster, in his address before the British Medical Association last year (which address is the clearest exposition of the aims of the physiology of the present day that I have seen), insists upon the fact that all distinctions between physiology and pathology are fictitious, and declares that attempts to divide them are like attempts to divide meteorology into a science of good and a science of bad weather, his conclusion that the pathologist

should be trained in methods of physiological investigation seems to me to be only a part of the truth. The tacit assumption is that all, or at least the most important, phenomena of human disease may be reproduced in the physiological laboratory. If this were only true what a tremendous stride would have been taken towards making medicine a science. Unfortunately, it is not so. Many of the most interesting of these phenomena, the most interesting because as yet the most unexplainable, can only be observed in the sick man himself. Nor have the physiologists as yet made much use of that field which ought to be specially inviting to them—namely, comparative pathology, although the literature of the present time already indicates that a change has begun in this respect.

While it is true that to the graduate of thirty years ago much of the physiological literature of the present day is an unknown tongue, it is also true that the physiologist of the present, who confines himself to laboratory work, will find himself distanced by the man who keeps his clinical and pathological studies and his experimental work well abreast.

The increase in both the amount and value of the literature of the several specialties in medicine is readily seen by a comparison of recent catalogues and bibliographies with those of twenty or thirty years ago, and this increase still continues at a greater rate than prevails in the more general branches. There are great differences of opinion as to the relative value of this increase and as to its future effect upon the profession, but there can be no doubt as to the fact. There must be specialties and specialists in medicine, and the results will be both good and evil; but the evils fall largely upon those specialists who have an insufficient general education, who attempt to construct the pyramid of their knowledge with the small end as a foundation. It has been said by Dr. Hodgen that "in medicine a specialist should be a skilled physician, and something more; but that he is often something else—and something less." There is truth in this; truth which the young man will do well to consider with care before he begins to specialise his studies; but, on the other hand, it is also true that the great majority of men must limit their field of work very much and very clearly if they hope to achieve success. The tool must have an edge if it is to cut. It is by the labour of specialists that many of the new channels for thought and research have been opened, and if the flood has sometimes seemed to spread too far, and to lose itself in shallow and sandy places, it has nevertheless tended to fertilise them in the end.

The specialists are not only making the principal advances in science, but they are furnishing both strong incentives and valuable assistance towards the collection and preservation of medical literature and the formation of large public libraries.

Burton declares that a great library cannot be improvised, not even if one had the national debt to do it with—thinks that 20,000 volumes is about the limit of what a miscellaneous collection can bring together, and refers especially to the difficulty in creating large public libraries in America. My experience would show that these statements do not apply to medical books. Of these the folios and quartos of three and four hundred years ago seem to have had great capacity for resistance to ordinary destructive forces. Perhaps much of this is due to the fact that they are not usually injured by too much handling or perusal. True, they are gradually becoming rarer, but at the same time by means of properly organised libraries they are becoming more accessible to all who wish to really use them, and not merely to collect and hide them away. They drift about like the seaweed, but the survivors are gradually finding secure and permanent resting places in the score of great collections of such literature which the world now possesses. At present the currents of trade are carrying them in relatively large numbers to the United States, where medical collectors and specialists are among the best customers of the antiquarian booksellers of Europe. I could name a dozen American physicians who have given to European agents almost unlimited orders for books relating to their several specialties, and upon their shelves may be found books of the 15th and and 16th centuries, which may be properly marked as "rarissime."

Not that the rarest books are by any means the oldest. The collector who seeks to ornament his shelves with the Rose of John of Gaddesden, or the Lily of Bernard de Gordon, the first folios of Avicenna or Celsus, or almost any of the eight hundred medical incunabula described by Hain, will probably succeed in his quest quite as soon as the one who has set his heart on the first editions of Harvey or Jenner, the American tracts on inoculation for small-pox, or complete sets of many of the journals and transactions of the present century.

Whatever may be the chosen line of the book collector, he is the special helper of the public library, and this whether he intend it or not. In most cases his treasures pass through the auction room, and sooner or later the librarian, who can afford to wait, will secure them from further travel. Thanks to the labours of such collectors, I think it is safe to say—what certainly would not have been true twenty years ago—that if the entire medical literature of the world, with the exception of that which is collected in the United States, were to be now destroyed, nearly all of it that is valuable could be reproduced without difficulty.

What is to be the result of this steadily increasing production of books? What will the libraries and catalogues and bibliographies of a thousand, or even of a hundred years hence be like if we are thus to go on in the ratio of geometric progression, which has governed the press for the last few decades? The mathematical formula which would express this, based on the data of the past century, gives an absurd and impossible conclusion, for it shows that if we go on as we have been going there is coming a time when our libraries will become large cities, and when it will require the services of every one in the world, not engaged in writing, to catalogue and care for the annual product. The truth is, however, that the ratio has changed, and that the rate of increase is becoming smaller. In Western Europe, which is now the great centre of literary production, it does not seem probable that the number of writers or readers will materially increase in the future, and it is in America, Russia, and Southern Asia that the greatest difference will be found between the present amount of annual literary product and that of a century hence.

The analogies between the mental and physical development of an individual, and of a nation or society, have been often set forth and commented on, but there is one point where the analogy fails as regards the products of mental activity—and that is that as yet we have devised no process for getting rid of the exuviæ. Growth and development in the physical world imply the changes of death as well as of life—that with the increase of the living tissues there shall also be the excretion and destruction of dead, outgrown, and useless matters which have had their day and served their purpose. But *litera scripta manent*. There is a vast amount of this effete and worthless material in the literature of medicine, and it is increasing rapidly. Our literature is, in fact, something like the inheritance of the golden dustman, but with this important difference—viz., that when the children raked a few shells or bits of bone from the dustman's heap, and, after stringing them together and playing with them a little while, threw them back, they did not thereby add to the bulk of the pile; whereas our preparers of compilations and compendiums, big and little, acknowledged or not, are continually increasing the collection, and for the most part with material which has been characterised as "superlatively middling, the quintessential extract of mediocrity." A large medical library is in itself discouraging to many inquirers, and I have become quite familiar with the peculiar expression of mingled surprise, awe, and despair which is apt to steal over the face of one not accustomed to such work when he first finds himself fairly in the presence of the mass of material which he wishes to examine for the purpose of completing his ideal bibliography of—let us say epilepsy, or excisions, or the functions of the liver.

Let such inquirers, as well as those who regret that they have no access to large libraries, and must therefore rely on the common text-books and current periodicals for bibliography, console themselves with the reflection that much the larger part of all of our literature which has any practical value belongs to the present century, and, indeed, will be found in the publications of the last twenty years.

There are a few books written prior to 1800 which every well-educated medical man should—I will not say read but—dip into, such as some of the works of Hippocrates and Galen, of Harvey and Hunter, of Morgagni and Sydenham; but this is to be done to learn their methods and style rather than their facts or theories, and by the great majority of physicians it can be done with much more profit in modern translations than in the originals. The really valuable part of the observations of these old masters has long

ago become a part of the common stock, and the results are to be found in every text-book.

If, perchance, among the dusty folios there are stray golden grains yet ungleaned, remember that just in front are whole fields waiting the reaper. There is not, and has not been, any lack of men who have the taste and time to search the records of the past, and the man who has opportunities to make experiments or observations for himself wastes his time, to a certain extent, if he tries to do bibliographical work so long as he can get it done for him. He wishes to know whether this problem has been attacked before, and with what result—whether there are accounts of any other cases like the one he has in hand. In ninety-nine instances out of a hundred if the answer to these questions is not given in the current text-books or monographs it is not worth prolonged search by the original investigator. Yet he should know how to make this search, if only to enable him to direct others, and it is for this reason that a little acquaintance with bibliographical methods of work ought to be obtained by the student.

When a physician has observed (or thinks he has observed) a fact, or has evolved from his inner consciousness a theory which he wishes to examine by the light of medical literature, he is often very much at a loss to know how to begin, even when he has a large library accessible for the purpose. The information he desires may be in the volume next his hand, but how is he to know that? And even when the usual subject-catalogue is placed before him he finds it very difficult to use it, especially when, as is often the case, he has by no means a well-defined idea as to what it is he wishes to look for. Upon the title-page of the Washington City Directory is printed the following aphorism, "To find a name you must know how to spell it." This has a very extensive application in medical bibliography. To find accounts of cases similar to your own rare case you must know what your own case is.

To return to the subject-catalogue. If it is a classed catalogue—a catalogue raisonnée—it will often seem to be a very blind guide to one who is not familiar with the classification and nomenclature adopted by the compiler. And certainly some of these classifications are very curious—reminding one of Heine's division of ideas into reasonable ideas, unreasonable ideas, and ideas covered with green leather. But if the inquirer has mastered the arrangement of the catalogue, it is two to one that it will not help him. It is a catalogue of the titles of books, but very often the title of a book gives very little information as to its contents, if, indeed, it is not actually misleading. Now, suppose the particular case he has in hand is one of a new-born infant having one leg much larger and longer than the other. He will find no book title relating to this. There may be a book in the library on diseases of the lymphatics which contains just what he wants, but unless he knows that his case is one affecting the lymphatics, he will hardly get the clue. There may also be in the library twenty papers, in as many different volumes of journals and transactions, the titles of which show that they probably relate to similar cases, but the titles of such papers do not appear in the catalogue.

It should also be observed that subject-catalogues may easily be put to improper uses, or thought to give more information than they really do. They are not bibliographies, but mechanical aids in bibliographical work.

You will perhaps pardon me for taking as an illustration the Index Catalogue of the library of the Surgeon-General's Office, in Washington, as being one with which I am familiar, and which I can venture to comment on without risk of its being thought that I wish to depreciate its value. Taking any given subject in medicine, it is possible for a fairly educated physician to obtain from this catalogue a large proportion of all the references which have any special value, and by so doing to save a vast amount of time and labour. On the other hand, he will find, when he comes to examine the books and articles referred to, that at least one-half of them are of no value so long as the other half are accessible, seeing that they are dilutions and dilatations, rehashes and summaries of the really original papers. If the seeker is in the library itself this does not cause a great waste of time, as he can rapidly examine and lay aside those that do not serve his purpose. But if he is using this catalogue in another library—say here in London, the case is different. It is highly improbable that he will find in any other collection all the books referred to, and then comes the annoyance of the doubt as to whether he may not be missing some very valuable paper. How is he to know whether or not Smith in his pamphlet on the functions of the pneumogastric has anticipated his own theory of its relations to enlarged tonsils? And in all such cases *omne ignotum est pro magnifico*. In a bibliography of the subject, prepared from the same material as the catalogue, he would either find no mention of Smith's paper, or, better still, a note that his paper is merely an abstract or compilation. The fact that he does not find Smith's book in the London library, nor any allusion to it in the best works on the subject, ought to induce him to ignore it altogether.

In proportion to the energy of the young writer, and his determination to not only note everything that has been written about his subject, but to carry out the golden rule of verifying all his references, he is apt to be led off from his direct research into the many attractive by-paths of quaint and curious speculation which he will find branching off on every side, and this danger must be guarded against, or he will find that he is wasting his time and energy in turning over chaff which has long ago been pretty thoroughly threshed and winnowed.

It is, however, no part of my present purpose to set forth the methods and principles of bibliography, it is sufficient to point out their importance, and to call attention to the point that a knowledge of how and where to find the record of a fact is often of more practical use than a knowledge of the fact itself, just as we value an encyclopædia for occasional reference, and not for the purpose of reading through from cover to cover.

Instruction in the history and literature of medicine forms no part of the course of medical education in English and American schools, nor should I be disposed to recommend its introduction into the curriculum if it were to be based on French and German models, but it does seem possible to take a step in this direction which would be of great value; not only as a means of general culture, as teaching students how to think, but from a purely practical point of view, in teaching them how to use the implements of their profession to the best advantage—for books are properly compared to tools of which the index is the handle. Such instruction should be given in a library, just as chemistry should be taught in a laboratory. The way to learn history and bibliography is to make them—the best work of the instructor is to show his students how to make them.

In the absence of some instruction of this kind the student is liable to waste much time in bibliographical research. There has been much more done in this direction than many writers seem to suppose, and there are not many subjects in medicine which have not been treated from this point of view. Of course, all is not bibliography which pretends to be such, very many of the exhaustive and exhausting list of references which are now so common in medical journal articles have been taken largely at secondhand, and thereby originate or perpetuate errors. It is well to avoid false pride in this matter. To overlook a reference is by no means discreditable—but a wrong reference, or an unwitting reference to the same thing twice gives a strong presumption of carelessness and secondhand work. Journal articles, however, and especially reports of cases, undergo strange transmogrifications sometimes, and I have watched this with interest in the case of a French or German paper, translated and condensed in the *London Record*, then appearing in abstract under the name of the translator in a leading journal, then translated again, with a few new circumstances, in a continental periodical, and finally perhaps reversed and appearing as an original contribution in the pages of the *Little Peddlington Medical Universe*.

In this connexion it is well to remember that a mere accumulation of observations, no matter how great the number, does not constitute science, especially if these observations have been recorded under the influence of the same theories and in essentially similar conditions.

Science seeks the law which governs or explains the phenomena, and when this is found the records of isolated instances of its action usually become of small importance so far as that law is concerned. We care little now for the records of the chemical experiments of a century ago, and the many detailed accounts of the earlier cases of the use of ether or chloroform are of so little interest at the present time that it is not worth while to refer to them in a bibliography of the subject. And although much has been done towards classifying and indexing our medical records (more, in fact, than most physicians suppose), still, as Helmholtz points out, such knowledge as this hardly deserves the name

of science, since it neither enables us to see the complete connexion nor to predict the result under new conditions yet untried.

Do I seem to depreciate the value of the thoughts which our masters have left us, and which have furnished the foundations on which we build?—or to undervalue the importance of the great medical libraries in which are stored these thoughts?—or to speak slightly of the utility of the catalogues, and indexes, and bibliographies, without which such libraries are trackless and howling wildernesses? If so, I have said what I did not mean to say. The subject has been considered from the point of view of what used to be called the division of labour, but which now I suppose should be called evolution and differentiation; and this has been done because "life is short and the art is long," with fair prospect of becoming longer. It is surely unnecessary for me to enter upon any panegyric of books or libraries. As Dr. Holmes says, "It is not necessary to maintain the direct practical utility of all kinds of learning. Our shelves contain many books which only a certain class of medical scholars will be likely to consult. There is a dead medical literature, and there is a live one. The dead is not all ancient; the live is not all modern. There is none, modern or ancient, which, if it has no living value for the student, will not teach him something by its autopsy. But it is with the live literature of his profession that the medical practitioner is first of all concerned."

In medicine, as in social science, we must depend for many facts upon the observation of conditions which occur very rarely, and which cannot be repeated at pleasure. I have already alluded to the importance of Nature's vivisections to the physiologist, and a record of a case written a century ago may be just the link that is needed to correlate the results of his experiments of yesterday with existing theories. The case which at first seems unique and inexplicable both receives and furnishes light when compared with ancient records.

A science of medicine, like other sciences, must depend upon the classification of facts, upon the comparison of cases alike in many respects, but differing somewhat either in their phenomena or in the environment. The great obstacle to the development of a science of medicine is the difficulty in ascertaining what cases are sufficiently similar to be comparable, which difficulty is in its turn largely due to insufficient and erroneous records of the phenomena observed. This defect in the records is largely due, first, to ignorance on the part of observers; second, to the want of proper means for precisely recording the phenomena; and, third, to the confused and faulty condition of our nomenclature and nosological classifications.

Let us consider each of these points briefly. Very, very few are the men who can by and for themselves see and describe the things that are before them. Just as it took thousands of years to produce a man who could see what now anyone can see when shown him, that the star Alpha in Capricorn is really two separate stars, so we had to wait long before the man came who could see the difference between measles and scarlatina, and still longer for the one who could distinguish between typhus and typhoid. Said Plato, "He shall be as a god to me who can rightly divide and define." Men who have this faculty—the "Blick" of the Germans—we cannot produce directly by any system of education; they come, we know not when or why, "forming a small band, a mere understanding of whose thoughts and works is a test of our highest powers. A single English dramatist and a single English mathematician have probably equalled in scope and excellence of original work in their several fields all the like labours of their countrymen put together."[2]

But cannot we do something to increase the number of observers by telling them what to observe? It is probable that much may be accomplished in this direction provided that care be taken to limit the field. Manuals of "what to observe at the bedside and in the post-mortem room" are very well in their way, but can never be made to reach the great majority of the profession, nor would they be of much use if they did. If a few, a very few, distinct specific questions are brought to the attention of the general practitioner, he will often be on the alert for their answer. And it should be remembered that chance may present to the most obscure practitioner an opportunity for observation which the greatest master may never meet.

[2] Iles, Mathematics in Evolution. Pop. Sci. Monthly, 1876. IX. p. 207.

The great difficulty is to get such questions prepared. They must relate to matters that are just in the nebulous region between the known and unknown—to points not yet clear, but of which we know enough to make it probable that by observing in a definite direction they can be made clear; and to prepare them requires not only knowledge, but a certain reaching out beyond knowledge. It usually happens that the man who has this faculty strives to answer his questions himself, and no doubt he can usually do it better than another. But much can be done towards defining and marking out what we do not know, and this has been a powerful aid to the progress of physiology in recent years. I have had occasion to refer to this in speaking of Prof. Foster's work on physiology, in each section of which an attempt is made to separate that which may be considered as proved from that which is merely probable; and thus almost every page becomes suggestive of work to be done.

Another example of what I mean will be found in a paper on the collection of data at autopsies by Professor H. P. Bowditch of Boston (Trans. Mass. Med. Legal Soc. 1, 1880, p. 139). Taking the results of an investigation into the absolute and relative size of organs at different periods of life, and in connexion with different morbid tendencies, recently published by Professor Beneke of Warburg, Dr. Bowditch urges the securing as large a number as possible of such data, and selects certain of Professor Beneke's results for special inquiry; as, for instance, that "the cancerous diathesis is associated with a large and poweful heart, capacious arteries, but a relatively small pulmonary artery, small lungs, well developed bones and muscles, and tolerably abundant adipose tissue." It can hardly be doubted that those who read the papers of Professors Bowditch and Beneke will be induced to examine things which before would have had for them no interest, and therefore to make and record observations in pathological anatomy which otherwise would have been lost.

The second difficulty referred to—viz., the want of means for making accurate records—is one that is yearly growing less. It behoves us to be modest in our predictions as to what may be accomplished in the future towards the solution of our Sphinx's riddle. We see as through a glass darkly, and except through the glass in no wise; but, at least, we have made such progress that what we do see we can, to a great extent, so record that our successors yet unborn can also see, and it is owing to this fact that a part of the medical literature of the last quarter of the nineteenth century will be more valuable than all that has preceded it.

The word-pictures of disease traced by Hippocrates and Sydenham, or even those of Graves and Trousseau, interesting and valuable as they are, are not comparable with the records upon which the skilled clinical teacher of the present day relies. Yet how imperfect in many cases are even the best of these records as compared with what might be given with the resources which we have at our command. The temperature chart has done away with the errors which necessarily follow attempts to compare the memory of sensations perceived last week with the sensations of to-day,—and the balance and the burette enable us to estimate with some approach to precision the tissue changes of our patients by the records of change in the excretions which they furnish; but we must still trust to our memory, or to the imperfect descriptions of what others remember, when we attempt to compare the results obtained on successive days by auscultation or percussion, although the phonograph and microphone strongly hint to us the possibility of either accurately reproducing the sounds of yesterday, or of translating them into visible signs, perhaps something like the dot and dash record of the telegraph code, which could then be given to the press, and so compared with each other by readers at the antipodes.

We are beginning to count the blood corpuscles, and to use photomicrography, but we do not yet apply the latter process to the former so as to enable every reader to count for himself.

The connexions of medicine with the physical sciences are yearly becoming closer, and the methods by which these sciences have been brought to their present condition are those by which progress has been, and is to be, made in therapeutics as well as in diagnosis or in physiological research. These methods turn mainly upon increasing the delicacy and accuracy of measurements: of expressing manifestations of force in terms of another force, or of dimension in space or

time. The balance and the galvanometer, the microscope and the pendulum, the camera, the sphygmograph and the thermometer are some of the means by which investigators, at the bedside and in the laboratory, are seeking to obtain records which shall be independent of their own sensations or personal equations; which shall be taken and used as expressing not opinions, but facts; and with every addition to or improvement in these means of measurement and record, the field of observation widens, and new and more reliable materials are furnished for the application of logical and mathematical methods.

Upon the third difficulty which has been referred to—viz., our confused and defective terminology, I need not dwell. "Science," said Condillac, "is a language well made," and though this is far from being the whole truth, it is an important part of it. In examining medical reports and statistics, it is necessary to bear constantly in mind that to understand many terms you must know what the individual writer means by them. When, for example, we find in such statistics a certain number of deaths attributed to gastro-enteritis, or croup, or scrofula, we have to take into account the country, the period and the individual author in order to get even a fair presumption as to what is meant.

The three difficulties which have been referred to, although the most important, are by no means the only causes of the confusion and imperfection of our records.

Prominent among the minor troubles of the investigator are defective or misleading titles, and in behalf of the readers and bibliographers of the future I would appeal to authors, and more especially to editors, to pay more attention than many of them do to the matter of titles and indexes. The men to whom your papers are most important, and who will make the best use of them provided they know of their existence, are for the most part hard workers, busy men who have a right to demand that their literary table shall be provided with properly prepared materials and not with shapeless lumps.

The editors of Transactions of Societies, whether these are sent to journals, or published in separate form, often commit numerous sins of omission in the matter of titles. The rule should be that every article which is worth printing is worth a distinct title, which should be as concise as a telegram, and be printed in a special type. If the author does not furnish such a title it is the editor's business to make it; and he should not be satisfied with such headings as "Clinical Cases," "Difficult Labour," "A Remarkable Tumour," "Case of Wound, with Remarks." The four rules for the preparation of an article for a journal will then be: 1. Have something to say. 2. Say it. 3. Stop as soon as you have said it. 4. Give the paper a proper title.

Some societies and editors do not seem to appreciate fully their responsibility for the articles which they accept for publication—a responsibility which cannot be altogether avoided by any formal declaration disclaiming it. This is due to the fact that while the merits of a paper can usually be determined by examination, this is by no means always the case. In every country there are writers and speakers whose statements are received with very great distrust by those best acquainted with them. Supposing these statements to be true, the papers would be of much interest and importance; but the editor should remember that a certain number of readers, and especially those in foreign countries, have no clue to the character of the author beyond the fact that they find his works in good company. In medical literature, as in other departments, we find books and papers from men who are either constitutionally incapable of telling the simple, literal truth as to their observations and experiments, although they may not write with fixed intentions to deceive, or from men who seek to advertise themselves by deliberate falsehoods as to the results of their practice. Such men are usually appreciated at their true value in their immediate neighbourhood, and find it necessary to send their communications to distant journals and societies in order to secure publication.

I presume that you are all familiar with the peculiar feeling of distrust which is roused by too complete an explanation. The report of a case in which every symptom observed, and the effect of every remedy given is fully accounted for, and in which no residual unexplained phenomena appear, is usually suspicious, for it implies either superficial observation or suppression, or distortion of some of the facts. A diagrammatic representation is usually much plainer than a good photograph, but also of much less value as a basis for farther work.

No fact is more familiar to this audience than the vast extent of the field of the science of to-day—so vast that few may hope to master more than a small part of it, and yet so closely connected that even the small part cannot be fully grasped without some acquaintance with a much wider field.

But little over a hundred years ago, Haller, in Göttingen, was professor of anatomy, botany, physiology, surgery, and obstetrics, and lecturer on medical jurisprudence. At the same time he was writing one review a week, and summing up existing medical science in his "Bibliotheca." To-day any one of these branches requires all the time of the most energetic and learned of our contemporaries, but, on the other hand, the well-educated medical graduate of to-day could give Haller valuable instruction in each of the branches of which he was professor. It is also true, as I have pointed out, that our actual progress is by no means in proportion to the work done, nor as great as these merely quantitative statements would seem to make it.

Science has been termed "the topography of ignorance." From a few elevated points we triangulate vast spaces, enclosing infinite unknown details. We cast the lead and draw up a little sand from abysses we shall never reach with our dredges.

If it is true that we understand ourselves but imperfectly in health, it is more signally manifest in disease, where natural actions imperfectly understood, disturbed in an obscure way by half seen causes, are creeping and winding along in the dark towards their destined issue, sometimes using our remedies as safe stepping-stones, occasionally, it may be, stumbling over them as obstacles.[3]

In days of old, when the profession of medicine, or of a single medical speciality, was an inheritance in certain families, a large part of their knowledge and the efficiency of their remedies was thought to depend upon these being kept a profound mystery. Among the precepts of magic there was no more significant one than that which declared that the communication of the formula destroyed its power, and that hence attempts to reveal the secret must always fail.

We have changed all that. Every physician hastens to publish his discoveries and special knowledge, and a good many do the same by that which is not special, or which is not knowledge. For the individual, in a degree—for the nation or the race in a much greater degree—the literature produced is the most enduring memorial. The whole result of civilisation has been cynically defined as being roughly, "Three hundred million Chinese, two hundred million natives of India, two hundred million Europeans and North Americans, and a miscellaneous hundred million or two of Central Asians, Malays, South Sea Islanders, &c., and over and above all the rest the Library of the British Museum. This is the net result of an indefinitely long struggle between the forces of men and the weights of various kinds in the attempt to move which these forces display themselves."[4]

And thus in our great medical libraries each of the folios or quaint little black letter pamphlets which mark the first two centuries of printing, or of the cheap and dirty volumes of more modern days with their scrofulous paper and abominable typography, represents to a great extent the life of one of our profession and the fruit of his labours, and it is by the fruit that we know him.

After stating that modern physicists have concluded that the sun is going out, that the earth is falling into the sun, and therefore that it and all things in it will be either fried or frozen, Professor Clifford concludes that "our interest lies so much with the past as may serve to guide our actions in the present, and with so much of the future as we may hope will be affected by our actions now. Beyond that we do not know and ought not to care. Does this seem to say Let us eat and drink, for to-morrow we die? Not so, but rather, Let us take hands and help, for this day we are alive together." To this I join a verse from the Talmud which will remind you of the first aphorism of Hippocrates, and is none the worse for that, "The day is short, and work is great—the reward is also great, and the master presses. It is not incumbent on thee to complete the work, but thou must not therefore cease from it."

[3] Border Lines of Knowledge, &c., by O. W. Holmes, Boston, 1862, pp. 7, 8.

[4] Liberty, Equality and Fraternity, by James Fitz James Stephen, N. Y., 1873, p. 178.

TRANSLATION OF AN

Address
ON
THE GERM THEORY.

Delivered at the Meeting of the International Medical Congress,

BY PROFESSOR PASTEUR.

GENTLEMEN,—I had no intention of addressing this admirable Congress, which brings together the most eminent medical men in the world, and the great success of which does so much credit to its principal organiser, Mr. Mac Cormac. The goodwill of your esteemed President has decided otherwise. How could one, in fact, resist the sympathetic words of that eminent man whose goodness of heart is associated in no small degree with great oratorical ability? Two motives have brought me to London. The first was to gain instruction, to profit by your learned discussions; and the second was to ascertain the place now occupied in medicine and surgery by the germ theory. Certainly I shall return to Paris well satisfied. During the past week I have learned much. I carry away with me the conviction that the English people are a great people, and as for the influence of the new doctrine, I have been not only struck by the progress it has made, but by its triumph. I should be guilty of ingratitude and of false modesty if I did not accept the welcome I have received among you and in English society as a mark of homage paid to my labours during the past five-and-twenty years upon the nature of ferments—their life and their nutrition, their preparation in a pure state by the introduction of organisms (*ensemencement*) under natural and artificial conditions—labours which have established the principles and the methods of microbie (microbism), if the expression is allowable. Your cordial welcome has revived within me the lively feeling of satisfaction I experienced when your great surgeon Lister declared that my publication in 1857 on milk fermentation had inspired him with his first ideas on his valuable surgical method. You have reawakened the pleasure I felt when our eminent physician Dr. Davaine declared that his labours upon charbon (splenic fever or malignant pustule) had been suggested by my studies on butyric fermentation and the vibrion which is characteristic of it. Gentlemen, I am happy to be able to thank you by bringing to your notice a new advance in the study of microbie as applied to the prevention of transmissible diseases—diseases which for the most part are fraught with terrible consequences, both for man and domestic animals. The subject of my communication is vaccination in relation to chicken cholera and splenic fever, and a statement of the method by which we have arrived at these results—a method the fruitfulness of which inspires me with boundless anticipations. Before discussing the question of splenic fever vaccine, which is the most important, permit me to recall the results of my investigations of chicken cholera. It is through this inquiry that new and highly important principles have been introduced into science concerning the virus or contagious quality of transmissible diseases. More than once in what I am about to say I shall employ the expression virus-culture, as formerly, in my investigations on fermentation, I used the expressions, the culture of milk ferment, the culture of the butyric vibrion, &c. Let us take, then, a fowl which is about to die of chicken cholera, and let us dip the end of a delicate glass rod in the blood of the fowl with the usual precautions, upon which I need not here dwell. Let us then touch with this chaged point some *bouillon de poule*, very clear, but first of all rendered sterile under a temperature of about 115° Centigrade, and under conditions in which neither the outer air nor the vases employed can introduce exterior germs—those germs which are in the air, or on the surface of all objects. In a short time, if the little culture vase is placed in a temperature of 25° to 35°, you will see the liquid become turbid, and full of tiny microbes, shaped like the figure 8, but often so small that under a high magnifying power they appear like points. Take from this vase a drop as small as you please, no more than can be carried on the point of a glass rod as sharp as a needle, and touch with this point a fresh quantity of sterilised *bouillon de poule* placed in a second vase, and the same phenomenon is produced. You deal in the same way with a third culture vase, with a fourth, and so on to a hundred, or even a thousand, and invariably within a few hours the culture liquid becomes turbid and filled with the same minute organisms. At the end of two or three days' exposure to a temperature of about 30° C. the thickness of the liquid disappears, and a sediment is formed at the bottom of the vase. This signifies that the development of the minute organism has ceased—in other words, all the little points which caused the turbid appearance of the liquid have fallen to the bottom of the vase, and things will remain in this condition for a longer or shorter time, for months even, without either the liquid or the deposit undergoing any visible modification, inasmuch as we have taken care to exclude the germs of the atmosphere. A little stopper of cotton sifts the air which enters or issues from the vase through changes of temperature. Let us take one of our series of culture preparations—the hundredth or the thousandth, for instance—and compare it in respect to its virulence with the blood of a fowl which has died of cholera; in other words, let us inoculate under the skin ten fowls, for instance, each separately with a tiny drop of infectious blood, and ten others with a similar quantity of the liquid in which the deposit has first been shaken up. Strange to say, the latter ten fowls will die as quickly and with the same symptoms as the former ten; the blood of all will be found to contain after death the same minute infectious organisms. This equality, so to speak, in the virulence both of the culture preparation and of the blood is due to an apparently futile circumstance. I have made a hundred culture preparations—at least, I have understood that this was done—without leaving any considerable interval between the impregnations. Well, here we have the cause of the equality in the virulence. Let us now repeat exactly our successive cultures with this single difference, that we pass from one culture, to that which follows it—from the hundredth to, say, the hundred and first, at intervals of a fortnight, a month, two months, three months, or ten months. If, now, we compare the virulence of the successive cultures, a great change will be observed. It will be readily seen from an inoculation of a series of ten fowls that the virulence of one culture differs from that of the blood and from that of a preceding culture when a sufficiently long interval elapses between the impregnation of one culture with the microbe of the preceding. More than that, we may recognise by this mode of observation that it is possible to prepare cultures of varying degrees of virulence. One preparation will kill eight fowls out of ten, another five out of ten, another one out of ten, another none at all, although the microbe may still be cultivated. In fact, what is no less strange, if you take each of these cultures of attenuated virulence as a point of departure in the preparation of successive cultures and without appreciable interval in the impregnation, the whole series of these cultures will reproduce the attenuated virulence of that which has served as the starting point. Similarly, where the virulence is null it produces no effect. How, then, it may be asked, are the effects of these attenuating virulences revealed in the fowls? They are revealed by a local disorder, by a morbid modification more or less profound in a muscle, if it is a muscle which has been inoculated with the virus. The muscle is filled with microbes which are easily recognised because the attenuated microbes have almost the bulk, the form, and the appearance of the most virulent microbes. But why is not the local disorder followed by death? For the moment let us answer by a statement of facts. They are these: the local disorder ceases of itself more or less speedily, the microbe is absorbed and digested, if one may say so, and little by little the muscle regains its normal condition. Then the disease has disappeared. When we inoculate with the microbe the virulence of which is null there is not even local disorder, the *naturæ medicatrix* carries it off at once, and here, indeed, we see the influence of the resistance of life, since this microbe, the virulence of which is null, multiplies itself. A little further, and we touch the principle of vaccination. When the fowls have been rendered sufficiently ill by the attenuated virus which the vital resistance has arrested in its development, they will, when inoculated with virulent virus, suffer no evil effects, or only effects of a passing character. In fact, they no longer die from the mortal virus, and for a time sufficiently long, which in some cases may exceed a year, chicken cholera cannot touch them, especially under the ordinary

conditions of contagion which exist in fowl-houses. At this critical point of our manipulation—that is to say, in this interval of time which we have placed between two cultures, and which causes the attenuation—what occurs? I shall show you that in this interval the agent which intervenes is the oxygen of the air. Nothing more easily admits of proof. Let us produce a culture in a tube containing very little air, and close this tube with an enameller's lamp. The microbe in developing itself will speedily take all the oxygen of the tube and of the liquid, after which it will be quite free from contact with oxygen. In this case it does not appear that the microbe becomes appreciably attenuated, even after a great lapse of time. The oxygen of the air, then, would seem to be a possible modifying agent of the virulence of the microbe of chicken cholera—that is to say, it may modify more or less the facility of its development in the body of animals. May we not be here in presence of a general law applicable to all kinds of virus? What benefits may not be the result? We may hope to discover in this way the vaccine of all virulent diseases; and what is more natural than to begin our investigation of the vaccine of what we in French call charbon, what you in England call splenic fever, and what in Russia is known as the Siberian pest, and in Germany as the Milzbrand. In this new investigation I have had the assistance of two devoted young *savants*—MM. Chamberland and Roux. At the outset we were met by a difficulty. Among the inferior organisms, all do not resolve themselves into those corpuscle germs which I was the first to point out as one of the forms of their possible development. Many infectious microbes do not resolve themselves in their cultures into corpuscle germs. Such is equally the case with beer yeast, which we do not see develop itself usually in breweries, for instance, except by a sort of scissiparity. One cell makes two or more, which form themselves in wreaths; the cells become detached, and the process recommences. In these cells real germs are not usually seen. The microbe of chicken cholera and many others behave in this way, so much so that the cultures of this microbe, although they may last for months without losing their power of fresh cultivation, perish finally like beer yeast which has exhausted all its aliments. The anthracoid microbe in artificial cultures behaves very differently. In the blood of animals, as in cultures, it is found in translucid filaments more or less segmented. This blood or these cultures freely exposed to air, instead of continuing according to the first mode of generation, show at the end of forty-eight hours corpuscle germs distributed in series more or less regular along the filaments. All around these corpuscles matter is absorbed, as I have represented it formerly in one of the plates of my work on the diseases of silkworms. Little by little all connexion between them disappears, and presently they are reduced to nothing more than germ dust. If you make these corpuscles germinate, the new culture reproduces the virulence peculiar to the thready form which has produced these corpuscles, and this result is seen even after a long exposure of these germs to contact with air. Recently we discovered them in pits in which animals dead of splenic fever had been buried for twelve years, and their culture was as virulent as that from the blood of an animal recently dead. Here I regret extremely to be obliged to shorten my remarks. I should have had much pleasure in demonstrating that the anthracoid germs in the earth of pits in which animals have been buried are brought to the surface by earthworms, and that in this fact we may find the whole etiology of disease, inasmuch as the animals swallow these germs with their food. A great difficulty presents itself when we attempt to apply our method of attenuation by the oxygen of the air to the anthracoid microbes. The virulence establishing itself very quickly, often after four-and-twenty hours in an anthracoid germ which escapes the action of the air, it was impossible to think of discovering the vaccine of splenic fever in the conditions which had yielded that of chicken cholera. But was there, after all, reason to be discouraged? Certainly not; in fact, if you observe closely, you will find that there is no real difference between the mode of the generation of the anthracoid germ by scission and that of chicken cholera. We had therefore reason to hope that we might overcome the difficulty which stopped us by endeavouring to prevent the anthracoid microbe from producing corpuscle germs and to keep it in this condition in contact with oxygen for days, and weeks, and months. The experiment fortunately succeeded. In the ineffective (*neutre*) *bouillon de poule* the anthracoid microbe is no longer cultivable at 45° C. Its culture, however, is easy at 42° or 43°, but in these conditions the microbe yields no spores. Consequently it is possible to maintain in contact with the pure air at 42° or 43° a *mycélienne* culture of bacteria entirely free of germs. Then appear the very remarkable results which follow. In a month or six weeks the culture dies—that is to say, if one impregnates with it fresh *bouillon*, the latter is completely sterile. Up till that time life exists in the vase exposed to air and heat. If we examine the virulence of the culture at the end of two days, four days, six days, eight days, &c., it will be found that long before the death of the culture the microbe has lost all virulence, although still cultivable. Before this period it is found that the culture presents a series of attenuated virulences. Everything is similar to what happens in respect to the microbe in chicken cholera. Besides, each of these conditions of attenuated virulence may be reproduced by culture; in fact, since the charbon does not operate a second time (*ne récidive pas*), each of our attenuated anthracoid microbes constitutes for the superior microbe a vaccine—that is to say, a virus capable of producing a milder disease. Here, then, we have a method of preparing the vaccine of splenic fever. You will see presently the practical importance of this result, but what interests us more particularly is to observe that we have here a proof that we are in possession of a general method of preparing virus vaccine based upon the action of the oxygen and the air—that is to say, of a cosmic force existing everywhere on the surface of the globe. I regret to be unable from want of time to show you that all these attenuated forms of virus may very easily, by a physiological artifice, be made to recover their original maximum virulence. The method I have just explained of obtaining the vaccine of splenic fever was no sooner made known than it was very extensively employed to prevent the splenic affection. In France we lose every year by splenic fever animals of the value of 20,000,000f. I was asked to give a public demonstration of the results already mentioned. This experiment I may relate in a few words. Fifty sheep were placed at my disposition, of which twenty-five were vaccinated. A fortnight afterwards the fifty sheep were inoculated with the most virulent anthracoid microbe. The twenty-five vaccinated sheep resisted the infection; the twenty-five unvaccinated died of splenic fever within fifty hours. Since that time my energies have been taxed to meet the demands of farmers for supplies of this vaccine. In the space of fifteen days we have vaccinated in the departments surrounding Paris more than 20,000 sheep and a large number of cattle and horses. If I were not pressed for time I should bring to your notice two other kinds of virus attenuated by similar means. These experiments will be communicated by-and-by to the public. I cannot conclude, gentlemen, without expressing the great pleasure I feel at the thought that it is as a member of an international medical congress assembled in England that I make known the most recent results of vaccination upon a disease more terrible, perhaps, for domestic animals than small-pox is for m[illegible]. I have given to vaccination an extension which science, I hope, will accept as a homage paid to the merit and to the immense services rendered by one of the greatest men of England, Jenner. What a pleasure for me to do honour to this immortal name in this noble and hospitable city of London!

General Address
ON
THE CONNEXION OF THE BIOLOGICAL SCIENCES WITH MEDICINE.

Delivered at the Meeting of the International Medical Congress.

BY T. H. HUXLEY, LL.D.,

SECRETARY TO THE ROYAL SOCIETY, AND VICE-PRESIDENT OF THE CONGRESS.

THE great body of theoretical and practical knowledge which has been accumulated by the labours of some eighty generations, since the dawn of scientific thought in Europe, has no collective English name to which an objection may not be raised; and I use the term "medicine" as that which

is least likely to be misunderstood; though, as everyone knows, the name is commonly applied in a narrower sense to one of the chief divisions of the totality of medical science. Taken in this broad sense "medicine" not merely denotes a kind of knowledge, but it comprehends the various applications of that knowledge to the alleviation of the sufferings, the repair of the injuries, and the conservation of the health of living beings. In fact, the practical aspect of medicine so far dominates over every other, that the "healing art" is one of its most widely received synonyms. It is difficult to think of medicine otherwise than as something which is necessarily connected with curative treatment, that we are apt to forget that there must be and is such a thing as a pure science of medicine—a "pathology" which has no more necessary subservience to practical ends than has zoology or botany.

The logical connexion between this purely scientific doctrine of disease, or pathology, and ordinary biology is easily traced. Living matter is characterised by its innate tendency to exhibit a definite series of the morphological and physiological phenomena which constitute organisation and life. Given a certain range of conditions, and these phenomena remain the same, within narrow limits, for each kind of living thing. They furnish the normal and typical characters of the species, and as such they are the subject matter of ordinary biology.

Outside the range of these conditions, the normal course of the cycle of vital phenomena is disturbed; abnormal structure makes its appearance, or the proper character and mutual adjustment of the functions cease to be preserved. The extent and the importance of these deviations from the typical life may vary indefinitely. They may have no noticeable influence on the general well-being of the economy, or they may favour it. On the other hand, they may be of such a nature as to impede the activities of the organism, or even to involve its destruction. In the first case these perturbations are ranged under the wide, and somewhat vague, category of "variations;" in the second, they are called lesions, states of poisoning, or diseases; and, as morbid states, they lie within the province of pathology. No sharp line of demarcation can be drawn between the two classes of phenomena. No one can say where anatomical variations end and tumours begin, nor where modification of function, which may at first promote health, passes into disease. All that can be said is that whatever change of structure or function is hurtful belongs to pathology. Hence it is obvious that pathology is a branch of biology—it is the morphology, the physiology, the distribution, the etiology of abnormal life. However obvious this conclusion may be now, it was nowise apparent in the infancy of medicine. For it is a peculiarity of the physical sciences that they are independent in proportion as they are imperfect; and it is only as they advance that the bonds which really unite them all become apparent. Astronomy had no manifest connexion with terrestrial physics before the publication of the "Principia;" that of chemistry with physics is of still more modern revelation; that of physics and chemistry with physiology has been stoutly denied within the recollection of most of us, and perhaps still may be. Or, to take a case which affords a closer parallel with that of medicine. Agriculture has been cultivated from the earliest times, and from a remote antiquity men have attained considerable practical skill in the cultivation of the useful plants, and have empirically established many scientific truths concerning the conditions under which they flourish. But it is within the memory of many of us that chemistry on the one hand, and vegetable physiology on the other, attained a stage of development such that they were able to furnish a sound basis for scientific agriculture. Similarly, medicine took its rise in the practical needs of mankind. At first, studied without reference to any other branch of knowledge, it long maintained, indeed, still to some extent maintains, that independence. Historically, its connexion with the biological sciences has been slowly established, and the full extent and intimacy of that connexion are only now beginning to be apparent. I trust I have not been mistaken in supposing that an attempt to give a brief sketch of the steps by which a philosophical necessity has become a historical reality may not be devoid of interest, possibly of instruction, to the members of this great Congress, profoundly interested as all are in the scientific development of medicine.

The history of medicine is more complete and fuller than that of any other science, except perhaps astronomy; and if we follow back the long record as far as clear evidence lights us, we find ourselves taken to the early stages of the civilisation of Greece. The oldest hospitals were the temples of Æsculapius; to these Asclepeia, always erected on healthy sites, hard by fresh springs and surrounded by shady groves, the sick and the maimed resorted to seek the aid of the god of health. Votive tablets or inscriptions recorded the symptoms, no less than the gratitude, of those who were healed; and, from these primitive clinical records the half-priestly, half-philosophic, caste of the Asclepiads compiled the data upon which the earliest generalisations of medicine, as an inductive science, were based. In this state pathology, like all the inductive sciences at their origin, was merely natural history; it registered the phenomena of disease, classified them, and ventured upon a prognosis, wherever the observation of constant co-existences and sequences suggested a rational expectation of the like recurrence under similar circumstances. Further than this it hardly went. In fact, in the then state of knowledge and in the condition of philosophical speculation at that time, neither the causes of the morbid state nor the rationale of treatment were likely to be sought for as we seek for them now. The anger of a god was a sufficient reason for the existence of a malady, and a dream ample warranty for therapeutic measures; that a physical phenomenon must needs have a physical cause was not the implied or expressed axiom that it is to us moderns.

The great man whose name is inseparably connected with the foundation of medicine, Hippocrates, certainly knew very little—indeed, practically nothing—of anatomy or physiology; and he would probably have been perplexed even to imagine the possibility of a connexion between the zoological studies of his contemporary Democritus and medicine. Nevertheless, in so far as he and those who worked before and after him in the same spirit ascertained, as matters of experience, that a wound or a luxation, or a fever, presented such and such symptoms, and that the return of the patient to health was facilitated by such and such measures, they established laws of Nature and began the construction of the science of pathology. All true science begins with empiricism, though all true science is such exactly in so far as it strives to pass out of the empirical stage into that of the deduction of empirical from more general truths. Thus, it is not wonderful that the early physicians had little or nothing to do with the development of biological science; and, on the other hand, that the early biologists did not much concern themselves with medicine. There is nothing to show that the Asclepiads took any prominent share in the work of founding anatomy, physiology, zoology, and botany. Rather do these seem to have sprung from the early philosophers, who were essentially natural philosophers, animated by the characteristically Greek thirst for knowledge as such. Pythagoras, Alcmeon, Democritus, Diogenes of Apollonia, are all credited with anatomical and physiological investigation; and though Aristotle is said to have belonged to an Asclepiad family, and not improbably owed his taste for anatomical and zoological inquiries to the teachings of his father, the physician Nicomachus, the "Historia Animalium," and the treatise "De Partibus Animalium," are as free from any allusion to medicine as if they had issued from a modern biological laboratory.

It may be added, that it is not easy to see in what way it could have benefited a physician of Alexander's time to know all that Aristotle knew on these subjects. His human anatomy was too rough to avail much in diagnosis, his physiology was too erroneous to supply data for pathological reasoning. But when the Alexandrian school, with Erasistratus and Herophilus at their head, turned to account the opportunities of studying human structure, afforded to them by the Ptolemies, the value of the large amount of accurate knowledge thus obtained to the surgeon for his operations, and to the physician for his diagnosis of internal disorders, became obvious, and a connexion was established between anatomy and medicine, which has ever become closer and closer. Since the revival of learning, surgery, medical diagnosis and anatomy have gone hand in hand. Morgagni called his great work, "De sedibus et causis morborum per anatomen indagatis," and not only showed the way to search out the localities and the causes of disease by anatomy, but himself travelled wonderfully far upon the road. Bichat, discriminating the grosser constituents of the organs and parts of the body one from another, pointed out the direction which modern research must take; until at length histology, a science of yesterday, as it seems to many of us, has carried the work of Morgagni as far as the micro-

scope can take us, and has extended the realm of pathological anatomy to the limits of the invisible world.

Thanks to the intimate alliance of morphology with medicine, the natural history of disease has, at the present day, attained a high degree of perfection. Accurate regional anatomy has rendered practicable the exploration of the most hidden parts of the organism, and the determination during life of morbid changes in them; anatomical and histological post-mortem investigations have supplied physicians with a clear basis upon which to rest the classification of diseases, and with unerring tests of the accuracy or inaccuracy of their diagnosis. If men could be satisfied with pure knowledge, the extreme precision with which, in these days, a sufferer may be told what is happening and what is likely to happen, even in the most recondite parts of his bodily frame, should be as satisfactory to the patient as it is to the scientific pathologist who gives him the information. But I am afraid it is not; and even the practising physician, while no wise under-estimating the regulative value of accurate diagnosis, must often lament that so much of his knowledge rather prevents him from doing wrong than helps him to do right. A scorner of physic once said that Nature and disease may be compared to two men fighting, the doctor to a blind man with a club, who strikes into the *mêlée*, sometimes hitting the disease and sometimes hitting Nature. The matter is not mended if you suppose the blind man's hearing to be so cute that he can register every stage of the struggle and pretty clearly predict how it will end. He had better not meddle at all until his eyes are opened—until he can see the exact position of the antagonists, and make sure of the effect of his blows. But that which it behoves the physician to see, not indeed with his bodily eye, but with clear intellectual vision, is a process, and the chain of causation involved in that process. Disease as we have seen is a perturbation of the normal activities of a living body; and it is and must remain unintelligible so long as we are ignorant of the nature of these normal activities. In other words, there could be no real science of pathology until the science of physiology had reached a degree of perfection unattained, and indeed unattainable, until quite recent times.

So far as medicine is concerned I am not sure that physiology, such as it was down to the time of Harvey, might as well not have existed. Nay, it is perhaps no exaggeration to say that within the memory of living men justly renowned practitioners of medicine and surgery knew less physiology than is now to be learned from the most elementary text-book, and, beyond a few broad facts, regarded what they did know as of extremely little practical importance. Nor am I disposed to blame them for this conclusion; physiology must be useless, or worse than useless, to pathology so long as its fundamental conceptions are erroneous. Harvey is often said to be the founder of modern physiology, and there can be no question that the elucidations of the function of the heart, of the nature of the pulse, and of the course of the blood, put forth in the ever-memorable little essay "De motu cordis," directly worked a revolution in men's views of the nature and of the concatenation of some of the most important physiological processes among the higher animals, while indirectly their influence was perhaps even more remarkable. But though Harvey made this signal and perennially important contribution to the physiology of the moderns his general conception of vital processes was essentially identical with that of the ancients; and, in the "Exercitationes de generatione," and notably in the singular chapter "De calido innato," he shows himself a true son of Galen and of Aristotle. For Harvey, the blood possesses powers superior to those of the elements; it is the seat of a soul which is not only vegetative, but also, sensitive and motor. The blood maintains and fashions all parts of the body "idque summâ cum providentia et intellectu, in finem certum agens, quasi ratiocinio quodam uteretur." Here is the doctrine of the "pneuma," the product of the philosophical mould into which the animism of primitive men ran in Greece, in full force. Nor did its strength abate for long after Harvey's time. The same ingrained tendency of the human mind to suppose that a process is explained when it is ascribed to a power of which nothing is known except that it is the hypothetical agent of the process, gave rise in the next century to the animism of Stahl; and, later, to the doctrine of a vital principle, that "asylum ignorantiæ" of physiologists, which has so easily accounted for everything and explained nothing, down to our own times.

Now the essence of modern, as contrasted with ancient, physiological science, appears to me to lie in its antagonism to animistic hypotheses and animistic phraseology. It offers physical explanations of vital phenomena, or frankly confesses that it has none to offer. And, so far as I know, the first person who gave expression to this modern view of physiology, who was bold enough to enunciate the proposition that vital phenomena, like all the other phenomena of the physical world, are, in ultimate analysis, resolvable into matter and motion, was René Descartes. The fifty-four years of life of this most original and powerful thinker are widely overlapped on both sides, by the eighty of Harvey, who survived his younger contemporary by seven years, and takes pleasure in acknowledging the French philosopher's appreciation of his great discovery. In fact, Descartes accepted the doctrine of the circulation as propounded by "Hervæus, médecin d'Angleterre," and gave a full account of it in his first work, the famous "Discours de la Méthode," which was published in 1637, only nine years after the exercitation "De motu cordis;" and, though differing from Harvey in some important points (in which it may be noted in passing Descartes was wrong and Harvey right), he always speaks of him with great respect. And so important does the subject seem to Descartes, that he returns to it in the "Traité des Passions," and in the "Traité de l'Homme."

It is easy to see that Harvey's work must have had a peculiar significance for the subtle thinker, to whom we owe both the spiritualistic and the materialistic philosophies of modern times. It was in the very year of its publication, 1628, that Descartes withdrew into that life of solitary investigation and meditation of which his philosophy was the fruit. And, as the course of his speculations led him to establish an absolute distinction of Nature between the material and the mental worlds, he was logically compelled to seek for the explanation of the phenomena of the material world within itself; and having allotted the realm of thought to the soul, to see nothing but extension and motion in the rest of Nature. Descartes uses "thought" as the equivalent of our modern term "consciousness." Thought is the function of the soul and its only function. Our natural heat and all the movements of the body, says he, do not depend on the soul. Death does not take place from any fault of the soul, but only because some of the principal parts of the body become corrupted. The body of a living man differs from that of a dead man in the same way as a watch or other automaton (that is to say a machine which moves of itself) when it is wound up, and has in itself the physical principle of the movements which the mechanism is adapted to perform, differs from the same watch or other machine when it is broken and the physical principle of its movement no longer exists. All the actions which are common to us and the lower animals depend only on the conformation of our organs and the course which the animal spirits take in the brain, the nerves, and the muscles, in the same way as the movement of a watch is produced by nothing but the force of its spring and the figure of its wheels and other parts. Descartes' treatise on Man is a sketch of human physiology in which a bold attempt is made to explain all the phenomena of life, except those of consciousness, by physical reasonings. To a mind turned in this direction Harvey's exposition of the heart and vessels as a hydraulic mechanism must have been supremely welcome. Descartes was not a mere philosophical theorist, but a hard-working dissector and experimenter, and he held the strongest opinion respecting the practical value of the new conception which he was introducing. He speaks of the importance of preserving health, and of the dependence of the mind on the body being so close that perhaps the only way of making men wiser and better than they are is to be sought in medical science. "It is true," says he, "that as medicine is now practised it contains little that is very useful; but without any desire to depreciate, I am sure that there is no one, even among professional men, who will not declare that all we know is very little as compared with that which remains to be known; and that we might escape an infinity of diseases of the mind, no less than of the body, and even perhaps from the weakness of old age, if we had a sufficient knowledge of their causes and of all the remedies with which Nature has provided us."[1] So strongly impressed was Descartes with this that he resolved to spend the rest of his life in trying to acquire such a knowledge of Nature as would lead to the

[1] Discours de la Méthode. 6e partie. Ed. Cousin. P. 126

construction of a better medical doctrine.[2] The anti-Cartesians found material for cheap ridicule in these aspirations of the philosopher; and it is almost needless to say that, in the thirteen years which elapsed between the publication of the "Discours" and the death of Descartes, he did not contribute much to their realisation. But for the next century all progress in physiology took place along the lines which Descartes laid down.

The greatest physiological and pathological work of the seventeenth century, Borelli's treatise "De motu animalium," is, to all intents and purposes," a development of Descartes' fundamental conception; and the same may be said of the physiology and pathology of Boerhaave, whose authority dominated in the medical world of the first half of the eighteenth century. With the origin of modern chemistry, and of electrical science, in the latter half of the eighteenth century, aids in the analysis of the phenomena of life, of which Descartes could not have dreamed, were offered to the physiologist. And the greater part of the gigantic progress which has been made in the present century is a justification of the provision of Descartes. For it consists essentially in a more and more complete resolution of the grosser organs of the living body into physico-chemical mechanisms. "I shall try to explain our whole bodily machinery in such a way that it will be no more necessary for us to suppose that the soul produces such movements as are not voluntary than it is to think that there is in a clock a soul which causes it to show the hours."[3] These words of Descartes might be appproprately taken as a motto by the author of any modern treatise on physiology.

But though, as I think, there is no doubt that Descartes was the first to propound the fundamental conception of the living body as a physical mechanism, which is the distinctive feature of modern, as contrasted with ancient physiology, he was misled by the natural temptation to carry out, in all its details, a parallel between the machines with which he was familiar, such as clocks and pieces of hydraulic apparatus, and the living machine. In all such machines there is a central source of power, and the parts of the machine are merely passive distributors of that power. The Cartesian school conceived of the living body as a machine of this kind; and herein they might have learned from Galen, who, whatever ill use he may have made of the doctrine of "natural faculties," nevertheless had the great merit of perceiving that local forces play a great part in physiology. The same truth was recognised by Glisson, but it was first prominently brought forward in the Hallerian doctrine of the "vis insita" of muscles. If muscle can contract without nerve, there is an end of the Cartesian mechanical explanation of its contraction by the influx of animal spirits.

The discoveries of Trembley tended in the same direction. In the fresh water *Hydra* no trace was to be found of that complicated machinery upon which the performance of the functions in the higher animals was supposed to depend. And yet the hydra moved, fed, grew, multiplied, and its fragments exhibited all the powers of the whole. And, finally, the work of Caspar F. Wolff,[4] by demonstrating the fact that the growth and development of both plants and animals take place antecedently to the existence of their grosser organs, and are, in fact, the causes and not the consequences of organisation (as then understood), sapped the foundations of the Cartesian physiology as a complete expression of vital phenomena. For Wolff, the physical basis of life is a fluid, possessed of a "vis essentialis" and a "solidescibilitas;" in virtue of which it gives rise to organisation; and, as he points out, this conclusion strikes at the root of the whole iatro-mechanical system.

In this country the great authority of John Hunter exerted a similar influence, though it must be admitted that the too sibylline utterances which are the outcome of Hunter's struggles to define his conceptions are often susceptible of more than one interpretation. Nevertheless, on some points Hunter is clear enough. For example, he is of opinion that "Spirit is only a property of matter" ("Introduction to Natural History," p. 6); he is prepared to renounce animism (l.c. p. 8), and his conception of life is so completely physical that he thinks of it as something which can exist in a state of combination in the food. "The aliment we take in has in it, in a fixed state, the real life, and this does not become active until it has got into the lungs; for there it is freed from its prison" ("Observations on Physiology," p. 113). He also thinks that: "It is more in accord with the general principles of the animal machine to suppose that none of its effects are produced from any mechanical principle whatever, and that every effect is produced from an action in the part, which action is produced by a stimulus upon the part which acts, or upon some other part with which this part sympathises, so as to take up the whole action" (l.c. p. 152). And Hunter is as clear as Wolff, with whose work he was probably unacquainted, that "whatever life is, it most certainly does not depend upon structure or organisation" (l.c. p. 114).

Of course, it is impossible that Hunter could have intended to deny the existence of purely mechanical operations in the animal body. But while, with Borelli and Boerhaave, he looked upon absorption, nutrition, and secretion as operations effected by means of the small vessels, he differed from the mechanical physiologists, who regarded these operations as the result of the mechanical properties of the small vessels, such as the size, form, and disposition of their canals and apertures. Hunter, on the contrary, considers them to be the effect of properties of these vessels which are not mechanical but vital. "The vessels," says he, "have more of the polypus in them than any other part of the body," and he talks of the "living and sensitive principles of the arteries," and even of the "dispositions or feelings of the arteries." "When the blood is good and genuine the sensations of the arteries, or the dispositions for sensation, are agreeable . . . It is then they dispose of the blood to the best advantage, increasing the growth of the whole, supplying any losses, keeping up a due succession, &c." (l.c. p. 133).

If we follow Hunter's conceptions to their logical issue, the life of one of the higher animals is essentially the sum of the lives of all the vessels, each of which is a sort of physiological unit, answering to a polype; and, as health is the result of the normal "action of the vessels," so is disease an effect of their abnormal action. Hunter thus stands in thought, as in time, midway between Borelli, on the one hand, and Bichat on the other. The acute founder of general anatomy, in fact, outdoes Hunter in his desire to exclude physical reasonings from the realm of life. Except in the interpretation of the action of the sense organs, he will not allow physics to have anything to do with physiology. "To apply the physical sciences to physiology is to explain the phenomena of living bodies by the laws of inert bodies. Now this is a false principle, hence all its consequences are marked with the same stamp. Let us leave to chemistry its affinity, to physics its elasticity and its gravity. Let us invoke for physiology only sensibility and contractility."[5] Of all the unfortunate dicta of men of eminent ability this seems one of the most unhappy, when we think of what the application of the methods and the data of physics and chemistry has done towards bringing physiology into its present state. It is not too much to say that one-half of a modern text-book of physiology consists of applied physics and chemistry, and that it is exactly in the exploration of the phenomena of sensibility and contractility that physics and chemistry have exerted the most potent influence. Nevertheless, Bichat rendered a solid service to physiological progress by insisting upon the fact that what we call life in one of the higher animals is not an invisible unitary archæus dominating from its central seat the parts of the organism, but a compound result of the synthesis of the separate lives of those parts. "All animals," says he, "are assemblages of different organs, each of which performs its function and concurs, after its fashion, in the preservation of the whole. They are so many special machines in the general machine which constitutes the individual. But each of these special machines is itself compounded of many tissues of very different natures, which, in truth, constitute the elements of those organs (l.c. lxxix.) The conception of a proper vitality is applicable only to these simple tissues, and not to the organs themselves (l.c. lxxxiv.)." And Bichat proceeds to make the obvious application of this doctrine of synthetic life, if I may so call it, to pathology. Since diseases are only alterations of vital properties, and the properties of each tissue are distinct from those of the rest, it is evident that the diseases of each tissue must be different from those of the rest. Therefore, in any organ composed of different tissues, one may be diseased, and the other remain healthy; and this is what happens in most cases (l.c. lxxxv.). In a spirit of true prophecy, Bichat says

[2] Discours de la Méthode, 6e partie. Ed. Cousin, pp. 193 and 211.
[3] De la Formation du Fœtus.
[4] Theoria Generationis, 1759.
[5] Anatomie générale, i. p. liv.

"We have arrived at an epoch in which pathological anatomy should start afresh." For, as the analysis of the organs had led him to the tissues as the physiological units of the organism, so, in a succeeding generation, the analysis of the tissues led to the cell as the physiological element of the tissues. The contemporaneous study of development brought out the same result, and the zoologists and botanists, exploring the simplest and the lowest forms of animated beings, confirmed the great induction of the cell theory. Thus the apparently opposed views which have been battling with one another ever since the middle of the last century have proved to be each half a truth.

The proposition of Descartes that the body of a living man is a machine, the actions of which are explicable by the known laws of matter and motion, is unquestionably largely true. But it is also true that the living body is a synthesis of innumerable physiological elements, each of which may nearly be described in Wolff's words, as a fluid possessed of a "vis essentialis," and a "solidescibilitas"; or, in modern phrase, as protoplasm susceptible of structural metamorphosis and functional metabolism; and that the only machinery, in the precise sense in which the Cartesian school understood mechanism, is that which coördinates and regulates these physiological units into an organic whole. In fact, the body is a machine of the nature of an army, not of that of a watch, or of a hydraulic apparatus. Of this army, each cell is a soldier, an organ a brigade, the central nervous system head-quarters and field telegraph, the alimentary and circulatory system the commissariat. Losses are made good by recruits born in camp, and the life of the individual is a campaign, conducted successfully for a number of years, but with certain defeat in the long run.

The efficacy of an army at any given moment depends on the health of the individual soldier, and on the perfection of the machinery by which he is led and brought into action at the proper time; and, therefore, if the analogy holds good, there can be only two kinds of diseases, the one dependent on abnormal states of the physiological units, the other on perturbation of their coördinating and alimentative machinery. Hence the establishment of the cell theory in normal biology was swiftly followed by a "cellular pathology," as its logical counterpart. I need not remind you how great an instrument of investigation this doctrine has proved in the hands of the man of genius, to whom its development is due, and who would probably be the last to forget that abnormal conditions of the coördinative and distributive machinery of the body are no less important factors of disease. Henceforward, as it appears to me, the connexion of medicine with the biological sciences is clearly defined. Pure pathology is that branch of biology which defines the particular perturbation of cell life, or of the coördinating machinery, or of both, on which the phenomena of disease depend.

Those who are conversant with the present state of biology will hardly hesitate to admit that the conception of the life of one of the higher animals as the summation of the lives of a cell aggregate, brought into harmonious action by a coördinative machinery formed by some of these cells, constitutes a permanent acquisition of physiological science. But the last form of the battle between the animistic and the physical views of life is seen in the contention whether the physical analysis of vital phenomena can be carried beyond this point or not.

There are some to whom living protoplasm is a substance even such as Harvey conceived the blood to be, "summâ cum providentia et intellectu in finem certum agens, quasi ratiocinio quodam;" and who look, with as little favour as Bichat did, upon any attempt to apply the principles and the methods of physics and chemistry to the investigation of the vital processes of growth, metabolism, and contractility. They stand upon the ancient ways; only, in accordance with that progress towards democracy which a great political writer has declared to be the fatal characteristic of modern times, they substitute a republic formed by a few billion of "animulæ" for the monarchy of the all-pervading "anima." Others, on the contrary, supported by a robust faith in the universal applicability of the principles laid down by Descartes, and seeing that the actions called "vital" are, so far as we have any means of knowing, nothing but changes of place of particles of matter, look to molecular physics to achieve the analysis of the living protoplasm itself into a molecular mechanism. If there is any truth in the received doctrines of physics, that contrast between living and inert matter, on which Bichat lays so much stress, does not exist. In nature nothing is at rest, nothing is amorphous; the simplest particle of that which men in their blindness are pleased to call "brute matter" is a vast aggregate of molecular mechanisms, performing complicated movements of immense rapidity and sensitively adjusting themselves to every change in the surrounding world. Living matter differs from other matter in degree and not in kind; the microcosm repeats the macrocosm; and one chain of causation connects the nebulous original of suns and planetary systems with the protoplasmic foundation of life and organisation. From this point of view pathology is the analogue of the theory of perturbations in astronomy; and therapeutics resolves itself into the discovery of the means by which a system of forces competent to eliminate any given perturbation may be introduced into the economy. And as pathology bases itself upon normal physiology, so therapeutics rests upon pharmacology; which is, strictly speaking, a part of the great biological topic of the influence of conditions on the living organism and has no scientific foundation apart from physiology.

It appears to me that there is no more hopeful indication of the progress of medicine towards the ideal of Descartes than is to be derived from a comparison of the state of pharmacology, at the present day, with that which existed forty years ago. If we consider the knowledge positively acquired in this short time of the *modus operandi* of urari, of atropia, of physostigmin, of veratria, of cæsa, of strychnia, of bromide of potassium, of phosphorus, there can surely be no ground for doubting that, sooner or later, the pharmacologist will supply the physician with the means of affecting, in any desired sense, the functions of any physiological element of the body. It will, in short, become possible to introduce into the economy a molecular mechanism which, like a very cunningly contrived torpedo, shall find its way to some particular group of living elements, and cause an explosion among them, leaving the rest untouched. The search for the explanation of diseased states in modified cell life; the discovery of the important part played by parasitic organisms in the etiology of disease; the elucidation of the action of medicaments by the methods and the data of experimental physiology—appear to me to be the greatest steps which have ever been made towards the establishment of medicine on a scientific basis. I need hardly say they could not have been made except for the advance of normal biology.

There can be no question, then, as to the nature or the value of the connexion between medicine and the biological sciences. There can be no doubt that the future of pathology and of therapeutics, and therefore that of practical medicine, depend upon the extent to which those who occupy themselves with these subjects are trained in the methods, and impregnated with the fundamental truths, of biology.

And, in conclusion, I venture to suggest that the collective sagacity of this Congress could occupy itself with no more important question than with this. How is medical education to be arranged so that without entangling the student in those details of the systematist, which are valueless to him, he may be enabled to obtain a firm grasp of the great truths respecting animal and vegetable life, without which, notwithstanding all the progress of scientific medicine, he will still find himself an empiric?

Address
ON
SCEPTICISM IN MEDICINE.

BY THE LATE

DR. MAURICE RAYNAUD.

Read at the Meeting of the International Medical Congress, with Introductory Remarks, by

DR. FÉRÉOL.

GENTLEMEN,—It is not I who should be here. A terrible misfortune, a grief to the entire French medical body, brings me to this place; and I have no other right to occupy it than that of the friendship which for more than twenty years united me to Maurice Raynaud. You will excuse me, then, if, under these painful circumstances, I only give expression to my feelings of sincere and profound regret. You will

permit me also, before reading to you the last work of Maurice Raynaud—a work which he had prepared for you,—to speak to you of him for a few minutes. I do not wish to enter into the details of his scientific life. I only ask your permission to relate to you a little of him who would have rejoiced to have been present with you, and who was so anxiously looking forward to the pleasure of meeting with so many illustrious *savants* and distinguished men gathered here from all parts of the world.

Maurice Raynaud, I might say, was the type of a worker. Work was to him not only the accomplishment of the first duty and of the highest function of man; it was an imperative need of his mind, and the joy of his life. It was so from his earliest youth. The son of a distinguished university man, he pursued earnest literary studies, which ended in the production of a thesis for the degree of Doctor of Literature—"Doctors in the Time of Molière,"—which you all know, and which will live. His thesis for the Doctorate of Medicine, "On Local Asphyxia and Symmetrical Gangrene of the Extremities," introduced into science the idea of a new disease, to which we ought to give his name, as you have done so justly to Bright's, Basedow's, and Addison's diseases.

Maurice Raynaud was not only a learned doctor, a consummate clinician, a physiologist, and a clever experimenter; he was also a *littérateur* and a philosopher. You will judge of all this presently. That of which you cannot judge, alas! is the oratorical talent of the man, for, according to his custom, he would not have read his discourse to you, but would have recited it from memory, leaving to the inspiration of the moment the liberty of modification. You would have been delighted, gentlemen, to see that sympathetic face, to listen to that voice, pleasing and clear, so well suited to the professorial chair, although, from circumstances which it would take too long and which are too delicate to attempt to explain here, the official professoriat remained closed to him up to the time of his death.

For a long time Maurice Raynaud had felt the dread symptoms of organic disease of the heart. He continued to labour incessantly. Accustomed to show indefatigable zeal in everything, he spared himself neither in science, clinical work, nor practice—where his devotion in every emergency secured to him the most sincere friendships; neither in the open professoriat, nor even in matters of politics and religion, in which he exhibited extraordinary zeal.

On the 29th of June last he returned to his home, apparently in better health than usual. After dining with his family, he played more gaily than ever with his little children, the youngest of whom was scarcely two months old. Suddenly he was seized with a terrible pain in the region of the heart; he knew that it was angina pectoris, and prepared himself at once for death. Three hours afterwards he had ceased to live, preserving to the end, in spite of the anguish attending the sad separation, a serenity, strength of mind, and a sweetness truly heroic. He was scarcely forty-seven years old.

I have been able to rescue from oblivion his last work, the address to which you are about to listen, and which he had not even finished. Should you find in it some imperfections, you must remember, gentlemen, that the author could not put to it the last touches—that I have been obliged, with all discretion and possible respect, to complete what was unfinished; and you will only blame the cruelty of this premature death and my own insufficiency.

THE ADDRESS.

GENTLEMEN,—It is a strange design, certainly it is a perilous one, which—for the only occasion on which the great honour of addressing this large assembly falls to my lot—should lead me to occupy its attention with Scepticism in Medicine. Is it not to do the very reverse of what you expected of me, and of what the circumstances call forth? Your presence here, gentlemen, brethren from all countries, who are come from every part of the civilised world to aid in the work of common progress, is not this fact alone a protest and a lesson? Does it not strongly affirm your faith in your science and in your art?

I venture to suggest, however, that if you will, as I now invite you to do, cast a general glance on the actual state of medical science and practice, and on your own thoughts, you will agree with me that the subject which I have chosen is not altogether uncalled for; that in speaking to you of scepticism, I speak neither of an unknown, nor perhaps an absent enemy, if indeed it be an enemy at all (as we shall have carefully to inquire); it is not in any case an imaginary one. I do not say, gentlemen, that we have less faith in medicine than had our fathers, but I think we believe in it in a different way. In this respect, as in so many others, an evolution has taken place in what we call, rightly or wrongly, "the modern spirit," which it seems to me is not without interest for us to study. And, first of all, let us understand what we mean by that word "scepticism." It is used to describe, as you all know, two things which should be kept distinct—the one a system of philosophy, very neatly defined, denying the foundations of certainty; the other, a certain intellectual tendency, a turn of mind, arising as much from habit and education as from reasoning, and leading to a more or less universal doubt. That the two things are often found together, that they willingly choose their home in the same minds, and in the same epochs, is what one might expect, and there is nothing surprising in the fact, but nevertheless they are not necessarily connected with one another.

Of the philosophical system I have nothing to say; this is not the place to occupy ourselves with that matter. I content myself with remarking, in passing, that *σκέπτομαι* does not mean "to doubt," but "to examine," which is not the same thing; and it has been by a real abuse of language that this confusion has been made—for which, I admit also, the sceptics are mainly responsible. Doubt is an excellent condition in which to undertake any examination whatever; but what do we examine for? Precisely in order that we may arrive at an opinion—that is to say, emerge from doubt. For if we decide in advance to suspend our judgment indefinitely, and not to be hindered in the research even by a demonstrated truth, it is not really worth while to attempt the study of a question. Thus, to my mind, there is established a necessary distinction between what I shall call good and evil scepticism, or rather, if you will allow me to call things by their true name, between scepticism proper, and the philosophic doubt; the latter is not only in itself perfectly legitimate, but the first condition even of all knowledge. If, however, we regard scepticism no longer as a system which we abandon to the disputes of the schools, but—placing ourselves at a point of view which interests us much more as medical men—as a disposition, and as a practical tendency, we shall find here again, I believe, a distinction established, not less legitimate, between scepticism understood in this sense and the spirit of criticism. The spirit of criticism is one of the most laudable things in the world. I believe, for my own part, that it has been more developed in our own time than it has ever been. It consists of being exacting in point of proofs; in wishing to test the most plausible assertions; in regarding the best established theories as provisional landmarks which serve to group facts, but which it must be ready to abandon as soon as the theory shall be shown to be false or insufficient, without abandoning the facts which gave it support—on condition, of course, that these facts, incessantly put to proof by experience, come off victorious. I admit also that between the spirit of criticism and scepticism the limit is very difficult to determine at which the one becomes the mere exaggeration of the other, and it is very easy to pass from one to another. Who can say where exaggeration begins? Where is the group of facts, of the physiological and vital class, in which we may flatter ourselves we possess a truth so definite that there is no need to return to it? Yes, surely, there exist these facts, they are the foundations of our art; but how few they are! And, on the other hand, how considerable, we might say infinite, is the number of those which, partially known, insufficiently explored, remain as an open field of research, and consequently of doubt! Especially as we are here quite at our ease, it is clear that there is no question of respect for authority. Authority, whatever may be said of it, has never had amongst us more than a precarious and always contested empire, even in times when it was supposed to have reigned supreme. Medicine is a matter, not of faith, but of knowledge, and its precepts have no other value than that which our reason accords to them. You see, contrary to Royer-Collard's motto, I am disposed to assign to scepticism its due; but I think I do so sufficiently in granting it as its domain the debateable lands on the confines of criticism; also I shall ask it to recognise, at least in theory, that it has no right to invade its neighbour's field.

From this, gentlemen, you will understand that it does not enter into my purpose to give you here the history of medical scepticism, to institute from this point of view a

correct parallel between the ancients and moderns, nor for a stronger reason, to put all scepticism on one side, all belief on the other. That would be a mere intellectual feat, as much opposed to good sense as to history. There have been in all ages, and apparently there always will be sceptics. The truth is that scepticism is one of the aspects of the human mind, just as extreme credulity is another. If we were obliged to choose between the two, it is still to scepticism we should have to give the preference, for although it be fruitless by itself, at least it has the advantage of keeping alive within the world this salutary idea, that science is not perfected, which is the indispensable condition of future growth. Scepticism, credulity, does it not seem to you that they are the two antipodes? and nevertheless it is a curious thing, the experience of every day shows us that these two opposites are far from excluding one another, and are by no means irreconcilable. It is even the salient trait of the scepticism of the men of the world on the subject of medicine. We touch here, gentlemen, on a very small side of the question, on which I am ashamed to detain such an assembly as this. I cannot, however, pass it by completely in silence. Every day we meet with people who come and tell us with a profound air that medicine is a conjectural science, to which I always reply, that if they mean by that name a science in which some conjecture is entertained, there is no science (meaning by that astronomy, physics, and chemistry) to which that reproach might not be addressed.

I speak, and for reason, neither of law nor of political economy. The question is to know in what degree conjecture is met with in medical science. Now, people who speak thus are not only ignorant of the first elements of the science which they judge with so much harshness, but for the most part judge it thus, because they demand from it more than it declares itself prepared to give. Whence the deceptions which you know, and with the deceptions the torrent of abuse and inexhaustible jesting to which we have become so long accustomed. I have lately had occasion to study closely the taunts of our own Molière and to discuss their worth. But Molière himself in so doing only followed a tradition as old as comedy and as old as medicine. Aristophanes had already given very irreverently to the god Æsculapius the name of "Scatophage," that is to say, eater of excrements. You see that this does not date from yesterday. It would be impossible to make a list of the slanderers of medicine; their name is legion. If doctors were vindictive men they would only have to expose the blind confidence of their slanderers in the grossest empiricism. This, again, is a history of all ages, from Cato the elder, who, they say, chased the doctors from Rome, forbade his son to have recourse to their ministrations, and, nevertheless, spent his time in drugging his wife, his slaves, and his animals; to Madame de Sévigné, who never ceased to pour forth sarcasms on the inanity of medicine, outbidding, if it were possible, Molière himself, and at the same time inundating her friends with innumerable absurd remedies, for which the only guarantee she required was that they should not have a medical origin. All this is very deplorable, and what is worse, is that we cannot say that the alternatives of disfavour and infatuation through which our art has passed can be explained by the intrinsic value of the work and of the men. The caprices and oscillations of fashion have had more to do with it than the general march of ruling ideas. The end of the eighteenth century in France is not generally regarded as an age of faith; it is, nevertheless, an epoch in which the medical profession exercised the most powerful ascendancy. The Duc de Lévis has left us in his memoirs a striking picture of the boundless admiration, of the tender, submissive confidence, with which medicine was treated in high society at that time, especially amongst women. "I can only," said he, "compare the sentiments of these ladies for their doctors with those which their grandmothers had at the end of the century of Louis XIV. for their confessors. And, in fact," he cleverly adds, "the preference which in our days the body had obtained over the soul easily explains this displacement of the affections." It must be added, in fairness, that the great ladies who listened to the counsels of Tronchin as to oracles, and came in crowds to the meetings of the Royal Society of Medicine to hear the florid speech of Vicq d'Azyr, were probably the same who would be found, not fewer in number and still more enthusiastic, around Mesmer. People talk a great deal of the progress of knowledge, and I will not contest it; but, strictly speaking, we cannot perceive much of it in the subject which occupies us. If we look around we shall find the same ignorant infatuation, the same mixture of the most unreasonable scepticism with the most infantine superstition, the same sneering, jesting spirit which believes nothing because it believes everything, which refuses scientific medicine and accepts without suspicion table-turning, spiritualism, and homœopathy, all without any other reason than pure fantasy. And this strange disposition is not seen only, or even principally, among the common people; it is in the upper classes, in minds otherwise intelligent and cultivated, sometimes even in learned men. I speak, of course, of France; but I have heard wise England herself is not exempt in this respect from the infirmities of human nature. Enough on this subject. In order that a judgment should be worth discussing the least we can demand is the competence of the judge; here it is wanting. Unfortunately, gentlemen, we can say it among ourselves, it is the doctors who have set the bad example. The remark has often been made, "Never have philosophers, literary men, or poets, said so much against medical science as the doctors themselves." Where could we find, for example, a judgment on therapeutics more cruel than this one? "Incoherent assemblage of opinions, in themselves incoherent, it is, perhaps, of all physiological sciences that in which the oddities of the human mind are best depicted. I say that this is not a science suited to a methodical mind; it is an informal assemblage of inexact ideas, of observations which are often childish, of illusory means, of formulæ as curiously conceived as they are fastidiously arranged. It is said that the practice of medicine is repulsive; I go further and say that, under certain conditions, it is not the practice of a reasonable man as its principles are carried out in the greater part of our materia medica. Who expresses himself thus, gentlemen? No ordinary man; it is Bichat, whom we all more or less acknowledge, and rightly, to be one of the promoters of modern science.' And it is by hundreds that we could borrow from our principal leaders in science portraits no less flattering, without reckoning Broussais, who says boldly that up to his time medicine has only landed men in a chimerical hope, and, taken for all in all, has been more harmful than useful to mankind. After that we cannot wonder if men outside our ranks judge us with some severity.

But was not the first word written of medicine one of discouragement and of doubt? "Ars longa, vita brevis, experientia fallax, judicium difficile." This is the first of all the aphorisms of Hippocrates, and M. Peisse asks ironically how, after having written it, Hippocrates could have the courage to write the second and the following ones. Certainly this grand utterance is an admirable lesson of modesty and prudence. But it has not been always understood in this sense; and the fact is that between scepticism and medicine there has always existed a certain natural affinity. It cannot be by mere chance that the list of sceptical philosophers contains so many names of doctors: Sextus Empiricus, Cornelius Agrippa, Sanchez de Toulouse, Martin Martinez, Leonard de Capua,[1] and others beside, among

[1] The best known of all, Sextus Empiricus, who in his celebrated "Hypotyposes Pyrrhoniennes" has left us a complete *résumé* and code of the scientific scepticism of antiquity, was one of us. I know very well that he somewhere denies the possibility of establishing a necessary relation between sceptical teaching and the medical empiricism such as they professed in his time. He maintained rather that this relation existed even between scepticism and methodism, which has greatly perplexed his commentators. But indeed it matters little; he was a doctor, of that there can be no doubt; and four or five doctors at least, whose names still survive, like him were amongst the foremost adepts of the antique pyrrhonism.

There are, however, some reservations to make. If medical study favours the emancipation of the intelligence, it must be said to its honour that it is fitted to maintain in a certain good, practical sense the intellect, and to keep it from the digressions into which so many professed philosophers willingly fall. Many of the authors I have just quoted seem often to have been judged very superficially, and are in truth doubters rather than sceptics.

It is thus that Sanchez's book itself, in spite of a satirical and paradoxical style, capable, I admit, of being misunderstood, is in reality nothing more than a virulent attack, not upon science, but upon the scholastic method still held in honour in his time. It has been compared, not without reason, to Bacon's "Pars Destruens de l'Organum;" and indeed this book was, according to the author's idea, only the first part of a work, in which, after having destroyed, he intended to build up. The work remaining incomplete must not be definitively judged.

As for Martinez, who has written not only a sceptical philosophy, but a treatise on sceptical medicine, his was surely an independent mind; and he was not born in the eighteenth century for nothing. But what is sufficient to prove that he was not a veritable sceptic, at least in the ordinary acceptation of the word, is that to support his teaching he invokes by the side of the great names of Sydenham and Baglivi, the authority of scripture and of the fathers; and in his polemic against

whom I am tempted to reckon Rabelais, who belongs to us as a doctor, and who as a philosopher, although he is most difficult to classify, certainly cannot be enrolled amongst the orthodox.

I alluded just now to Cornelius Agrippa. Everyone knows that in his book medicine is greatly abused. But what is little known, I think, is that Montaigne, whose name it is difficult to withhold when speaking of scepticism, has written a chapter of extreme bitterness against medicine.[2] His hits are very hard, and, it must be added, have often much justice in them. We recognise in this chapter the hand of a connoisseur; it is a good specimen of Montaigne's style. It is he indeed who, in another book, under pretext of apologising for the philosopher and Doctor Raimond Sebon, enlists him by force into the camp of scepticism, and makes his hero give expression to his most exorbitant proposals. Here, indeed, he does better still. He does not scruple, in many a passage, to copy Cornelius Agrippa; I say to copy him even to plagiarism, and of course without naming him. We cannot deny that in his lectures he gave expression to that "natural distaste of medicine" which he pretends to have inherited from his father and grandfather. His subject was at hand possibly, but most of his arguments, at any rate, were supplied by a medical man.

Gentlemen, I have been reviving old memories, but believe me I have not been seeking in them matter for comment; if they suggest to your mind any comparison with the present, it is not my doing. Naturally, I could only speak to you of that visible, palpable scepticism which has left its trace in written documents. As for that which is hidden or only reveals itself by its effects, the tendency of which is not less fatal, we can only guess at it; but a little attention is sufficient to reveal it on very page of our history. But I should have accomplished a useless task if in this glance over the past I had not tried to unravel the causes of a fact so wide spread and constant that it seems like an inherent evil in medicine. Here, as everywhere, a sound etiology is necessary to a wise treatment.

What, gentlemen, are the causes of medical scepticism? There are some belonging to all ages and countries, and we have only to know a little of the human heart in order to discover them. Scepticism flatters two of the deepest and not most honourable of the instincts of our nature, idleness and vanity: idleness, by dispensing with the need of seeking for truth, which always requires an effort to be discovered, and which, like the kingdom of God, suffers violence; vanity, by setting us up to criticise, to reckon the labours of others at a cheap rate and to take to ourselves the gentle persuasion that we see through the common prejudices. There is something of that at the bottom of all scepticism. But God forbid that I should say there is only that. There is also for a great number of the most conscientious and reflective minds the inevitable discouragement caused by the clashing of contradictory opinions, the difficulty of arriving at one's own conviction, the uncertainty of therapeutic results. Why should we wonder, then, at finding so many medical men among sceptics? Is it not in medicine above all, that phenomena, the most complicated and most difficult to study, present themselves under quite different aspects, though they are the same in reality? Is it not most difficult in medicine to lay down fixed and invariable rules which are not encumbered by numerous exceptions? Is it not this which has given rise to that multitude of systems which clash with, combat, and destroy one another, and whose incessant decay reminds one of Bossuet's famous remark on the noise that empires make in falling on one another. In view of such a spectacle it does indeed require much strength of mind not to bewail the vanity of the conceptions of the human mind and to prevent one from yielding to the temptation to include them all in the same contempt. It is particularly when we have lived much in the past, when we have stirred up the dust of the libraries, and looking on that mountain of books and manuscripts, the accumulation of centuries, that we think of the smallness of the result, of the little already known, of all there is yet to learn; it is then, above all, that we experience that satiety, even disgust of books; and we understand Sydenham's conceit when, in reply to one of his friends who asked him which was the best book to read, he said, "read Don Quixote." But Sydenham was not a sceptic; the book which he well knew how to read was the book of Nature.

But, gentlemen, the real and most potent cause of scepticism, that which has in all times, as to-day, made so many sceptics amongst us, is that whilst medicine is a science it is also a profession. We do not complain of that, it is one of its glories, its highest perhaps, for by it it satisfies what is most generous and elevated in the human heart, the desire to come to the help of those who suffer. But it is an onerous glory. The profession draws largely on science, this latter will always, whatever it may accomplish, come short of what is required of it. Men, for the most part, trouble themselves little about the progress of science; but when they are ill they want to be cured, and that is what they come to us for. Now, there is for every medical man conscious of the dignity of his art, a painful feeling arising from his powerlessness in the presence of so many ills. What a contrast there is between the number of services that men expect of us and that which we are really able to render. How shall we justify this excess of confidence of so many sick people? We must act and strive to do our best in spite of all. Science is incomplete; it always will be; never mind, we must prescribe. That, gentlemen, we allow, is a pernicious habit for the scientific mind to acquire. We accustom ourselves thus to act at hazard in the dark, or deceiving ourselves as to what we know, as well as to that of which we are ignorant. Before this alternative some minds, little prone to temporising, fall back into doubt and inaction, and satisfy themselves with this argument, that if men say with Auguste Comte, "Savoir c'est pouvoir," it is not less correct to affirm that to be ignorant is to be powerless.

Such, gentlemen, are the most important of the general causes which in all times and in every country have induced a large number of medical men to enlist under the banner of scepticism. There are others which belong especially either to past ages or to our own time, and on which I desire to dwell for a moment. Let us speak of the past first of all. What is the meaning in medicine of that word, the past? Where do the ancients end and the moderns begin? It is to England, gentlemen, we look for an answer. To her the honour belongs to have really inaugurated the modern era in the medical sciences. Indeed, as Daremberg has said, there are really only two great periods in the history of medicine—that which preceded and followed your great, your immortal Harvey. Before Harvey's time the sick man was looked upon from without, sometimes they say with an astonishing and admirable sagacity, but always from without—the symptoms. Since Harvey's time he has been studied from within—the functions. The interior microcosm, closed until then, is now open to investigation. At the same time, Harvey introduced into science this new and fertile idea, that there are permanent and immutable laws in physiology. Up to his time nothing was known in physiology; from that moment men began to learn. But you know, besides, gentlemen, that chronology is far from being always in accord with doctrines. It required half a century for the circulation of the blood to be admitted without contest, during which time the new doctrine encountered the strangest and most distressing forms of scepticism; that which persisted in shutting the eyes to evidence, and in combating by the sole weapons of the dialectics the best established facts. How much talent, science, and wit, above all, has been wasted by the adversaries of the "circulators," as they were then called! Guy Patin is a memorable example of this. With an intellect singularly shrewd, but closed to every new idea, regarding with equal contempt the pharmacopœia of his time, antimony, and the circulation of the blood, reducing all therapeutics to bleeding, he has furnished us with a startling proof that scepticism and routine often go hand in hand. Who would dare to say,

Lopez de Aranjo he was backed up by Hieronymo Feyjoo, professor of theology at Oviedo. His voluminous works are indeed but a lengthened plea in favour of the method of observation. He proceeds by dialogues after the style of Plato, introducing Hippocratists, Galenists, chemists, Cartesians, refuting the one by the other, and in the end his conclusion is that scientific certainty is of its nature, not absolute, but only relative, and that that is even the condition of progress. Thus you see this pyrrhonism scarcely outruns that of which Sprengel declared himself the firm partisan; for this reason there will be many more pyrrhonists.

Whatever may be said, gentlemen, the affinity of which I spoke just now does exist more or less; and what is more worthy of attention still is to show in the medical literature a current of scepticism bearing on things relating to medicine, a dogmatising scepticism, like that of Leonard de Capua, for example (Parere del Signor Lionardo di Capoa, divisato in otto Raggionamenti, nei quali partitamente narrandosi l'origine e'l progresso della medicina, chiaramente l'incertezza della medesima si fa manifesta. Napoli, 1685). This doctor appears to have undertaken the task of demonstrating *ex professo* that medical science does not exist. I do not know that a like spectacle is offered to us by any of the other sciences.

[2] Chapter xxxvii., Book 15 of his essays, entitled "On the Resemblance of Children to their Parents."

besides, that the race of Guy Patin is extinct, and that the spirit of Harvey is everywhere absolutely triumphant to-day?

In all ages, certainly formerly more than at the present time, dogmatism has been the father of medical scepticism. The narrowness and tyranny of dogma lead directly to doubt, above all when it does not rest on very firm foundations. Now, when we wish to investigate the old spirit, what do we find? A vague and incomplete notion of the permanence of the laws of Nature. In the midst of hypotheses, sometimes mystic, sometimes grossly materialistic on the *primum movens*, we always meet with this idea, more or less formulated, but everywhere admitted, that life is a capricious, indiscernable force; that in all its manifestations the exception is nearly as frequent as the rule; and that it is impossible, in these changing matters, to affirm anything positively.

Gentlemen, do you believe that this manner of looking at things is so remote from us? Do you not often hear it said that the words "never" and "always" should not be used in medicine, where "everything happens"? Have you never heard "fickle medicines"—uncertain diseases—spoken of? Is it not scepticism that meets you in these vulgar forms—scepticism which is not perhaps acknowledged, but is none the less dangerous? It is often said nowadays that there are no systems, that the time for them is past; that now men only believe in facts, &c. That is a point on which I take the liberty of being somewhat sceptical. Have we had none of them in France since the commencement of the century: physiological medicine, organic medicine, and in face of the latter the vitalist, numerical medicine, exact medicine, positive medicine, and even positivist medicine, which is not quite the same thing? I could mention others if I wished. Besides this, pretension to strictness and accuracy does not belong specially to our own time; it has always been so. Do you believe our fathers imagined that they made science fanciful? They also proclaimed the sovereignty of experience and the omnipotence of facts. Meanwhile, I willingly admit that systems have now lost much of their importance—until they recover it, I admit that for the moment, warned by the example of the past, we do not embrace all science in a single formula; that at last our conceptions being more modest, have for that reason a better chance of being true. You see I give to the present time all the credit that propriety demands. I only ask of it to be thoroughly willing to recognise the defects in its qualifications, and it is in these defects that I find some of the causes of modern medical scepticism. I shall allude, first of all, to ignorance. It would be more consistent with good feeling and more correct even to say—the abuse of science. To-day science is so vast that we are obliged to fortify ourselves under penalty of remaining unproductive. From this arises, notably in our time, that some of the most eminent men in their speciality are absolutely ignorant of anything not pertaining to it. And as it is always easier to doubt than to study, they are adepts, ready made, for certain kinds of partial scepticisms, such as therapeutic scepticism, so much in vogue among men of the world. There are other ways of abusing science which also end in doubt. The dominant character of actual science is, as I said just now, the direct intervention of physiology in the things of pathology. At the same time, physiology is not medicine. Their field of study is not even quite identical. There are, it is true, the same tissues and organs; but they react differently according to whether the man is well or ill; and it belongs to illness alone to provoke certain kinds of reactions which, up to the present at least, we have not been able to produce by experiments. Who would suspect in looking at the brain, Hippocrates said, that wine disturbs its functions? Would the most exact knowledge of the functions of the skin teach us anything of the nature of small-pox? However small the ties may be which unite physiology to medicine, the quantity of light that the one throws upon the other is still quite inadequate. And we must not be surprised if some of the greatest physiologists still regard medicine with absolute scepticism. Such with us was Magendie, to whom we should be very forgiving because he has given us Claude Bernard. Formerly, for example, the efficacy of bleeding in cases of cerebral hæmorrhage was believed in; a theory was founded on it of the "raptus sanguin," and of derivation by bloodletting. But the discovery of miliary aneurisms brings this theory to the ground; and at the same time the lancet loses favour.

However, gentlemen, we affirm boldly, that is only superficial minds who are led by the conquests of pathological anatomy to discredit the ancients, and to the presumptuous conclusion that there is nothing to do in therapeutics. It is too easy to answer them. Is it not due to the progress of pathological anatomy that we have to-day proof of the curability of phthisis, and of the possible evolution towards cicatrisation of the tuberculous follicle? Is it not something too to know when we are on the wrong road? We change it at least, and that is a great benefit to the patient. But you would blame me if I spent more time on such an easy refutation.

Gentlemen, thus far I have defined and described the malady of scepticism, and we have together sought out its principal causes. Is there a remedy for this evil? But I hear an objection: Is scepticism really an evil? Is it an enemy to be combated? Is it not rather one of the peculiarities of human nature with which, in our inability to triumph over it, we had better make terms? In such a question, gentlemen, we must have sincerity. Formerly I had an old master, rather sceptical himself, who was groaning in my presence one day about the impotence of our art, and he added, "It would not do to say that to young men, for it would discourage them; they will become aware of it soon enough." For myself, I never could understand this way of looking at things; the truth should be declared to all, young or old. If the result of so much human labour and watchings and sacrifices were nothing it would still be our duty to say so. Wilful error, when kept to one's self, may screen itself under the name of illusion, but when it is taught to others it can but be called by one name—a lie.

But, gentlemen, who will dare to say that we are in that condition? If I were to hazard here a like enormity, what protests I should call forth! Is not your presence here a striking and emphatic negation of a system which, in pathology, leads to ignorance, in therapeutics to inaction? Let us endeavour to find out means to resist this fatal tendency, and to strengthen one another in our beliefs. The remedy for scepticism, gentlemen, is, above all, to be found in science itself, in science each day better worked out, better understood, the incessant progress of which acts as the desired corrective to its mistakes, and brings to its *postulata* the looked-for response. Each advance in theory brings about, sooner or later, a change in practice, which often comes whence it was least expected. It is not enough to proclaim the merits of exact science; in every science there is something of certainty and uncertainty. It is not enough either to run down the systematic mind. Have not the most famous systematists been often the most forward to decry the systems of others? It is not enough even to build upon the reputed solid foundations of pathological anatomy. Long before our illustrious Bouillaud had chosen as his motto Bichat's phrase: "What is observation if we do not know where the evil is?" Celsus had said: "How shall we treat a diseased organ of which we literally know nothing?" What we want above all is to put into daily practice the truth which underlies the following axioms: (1) The absolute constancy of the laws which regulate life. (2) The strict subordination of phenomena to certain conditions which have to be determined.

Claude Bernard has called this last law "determinism"—rather a barbarous expression, perhaps, and all the more open to dispute inasmuch as its author even did not always use it in the same sense. But if the word is open to dispute the thing is not; it is not a system, it is the very essence of the scientific spirit. I need not show you the uses to which Claude Bernard has applied it in physiology, and it would take too long to detail to you those to which it can be turned in pathology. Allow me to give you one or two examples. I will be very brief. Let us take locomotor ataxy. For many years this disease was confounded with the vague groups of paraplegias; nothing was known of it, either its nature or its cause; it was treated at a venture; some patients were healed who certainly were not ataxics. That is the first stage of the disease; it is the period of ignorance. Then comes a second stage—that of anatomo-pathology; the injury is discovered, and known to be incurable. That is the period of discouragement. Finally, the third stage; it is stated that a large proportion of these cases of ataxy (I do not say all) are dependent on syphilis; if these cannot be radically cured at least the disease may be arrested in its development. Virulent and infectious diseases furnish us with a still more striking example. When, in these latter days, the study of spontaneous generation led to the discovery of that world of infinitesimal organisms which seem to beset

us everywhere, one may well ask how the human species, how animal life itself, can resist these myriads of invisible enemies ever ready to take advantage of the least failure of the organism to penetrate in its room? Laying hold of this idea, a great surgeon, and also a thinker—Lister—has introduced a new method, which diminishes and suppresses the chances of consecutive infection in the great operations, extends the limits of his art, and assures the almost infallible success of daring attempts from which surgeons recoiled but a short time ago. On the other side, a man of genius, whose name I am proud to mention, my illustrious friend Pasteur, resuming and reducing to system your great Jenner's work, succeeded by the methodical attenuation of the virus, in inaugurating the prophylaxy of virulent diseases, and thus opened up to us new and indefinite horizons. In view of such results, gentlemen, what ground has scepticism to rest on? We might, indeed, have to guard ourselves from excessive enthusiasm if our admiration were not fully justified by the discoveries already made.

This, gentlemen, is the most telling way in which to reply to sceptics. The movement is not to be baffled, it proves itself. Let us not forget in the meantime an axiom of ancient medicine, which has survived all the dogmatic revolutions, and which Hippocrates defined as the *vis medicatrix naturæ*. It has often been laughed at. For my own part, I believe in it as firmly as in the most incontestable experimental facts. The interpretations, indeed, that have been given of it are questionable; but if so many, and sometimes such poor attempts have been made to explain it, it is precisely because the fact obtrudes itself on the attention. Recently, again, at the Academy of Medicine, in Paris, I noticed in a statement of Pasteur's, that our eminent compatriot, trying to dose the progressive attenuation of his virus, took for criterion the resistance which the organism of the sheep opposed to it. One virus kills one sheep in fifty; another, one in a hundred; a third, fifty in a hundred, &c. What does that mean, gentlemen? This condition which M. Pasteur brought about—thoughtful observer as he is—this "receptivity,"—what is it at bottom, if not that force of resistance which exists in every living being, differing according to the species, and also according to the individual? Is it not in the main the same thing as the *vis medicatrix naturæ?* Whatever we may say to it, it is one of the dominant facts of medical science. This force of vital resistance, this more or less receptivity of the disease, will be always the indispensable auxiliary of the doctor; and, for my own part, I would give up the exercise of my art if I were not sustained by this ally. The incomparable difficulty of our art is the necessity of apportioning a just share to this element in the cure of diseases, and of conciliating it, in the interpretation of morbid phenomena, with the two fundamental axioms that I have already admitted. The task is arduous; but difficult as it may appear, gentlemen, be assured that harmony will be established. Be that as it may; taking into account this great force of vital resistance, made clear by the light of etiology, pathological anatomy is no longer a meditation upon death, but the science of indications; a profound saying which has been bequeathed to us by ancient medical science, and which always corresponds to the highest realities of art. When certainty is obtained on these three points, gentlemen, science will be nearly perfected; even whilst it is not, we are not quite disarmed, for we have the right to appeal to empiricism and to tradition: who of us would be able to do without that? It gives us, for want of something better, a kind of certainty which is not without value, and which does not hinder us from seeking a superior certainty. The patrimony that each medical generation bequeaths to that which comes after is twofold, the one of an absolute, the other of a relative value, but neither to be disdained. It is thus that we have received from our ancestors opium, quinquina, nearly all our best medicines, which have done us good service, and will do us still more, before we definitely fix their mode of action; in like manner we in our turn leave to our descendants chloroform, chloral, phenic acid, the salicylates, pilocarpine, and many other substances, which it belongs to the future to appreciate and to explain their various uses. Thus are formed what Cabanis has called so appropriately, "the practical certainties" of medical science; thus we come to the kind of certainty peculiar to the clinician, which resembles, in many respects, moral certainty, and which, without attaining to scientific certainty, has no less its place and rank beside her. The limits assigned to me do not allow of my adding more to this already lengthy address. As a fitting close, allow me, gentlemen, to quote a passage, which is like a *résumé* and conclusion of my subject, from Claude Bernard. I could not do better than leave with you the impression of these simple and forcible words. "The sceptic," says our great physiologist in his "Introduction à la Médecine Expérimentale," "is he who believes not in science, but in himself; he believes enough in himself to dare to disown science, and to affirm that it is not subject to fixed and determined laws. The doubter is the real *savant;* he only doubts himself and his own interpretations, but he believes in science; he admits, even in the experimental sciences, a criterion or an absolute scientific principle."

Address
ON
THE CHANGES WHICH SURGERY HAS UNDERGONE DURING THE LAST TEN YEARS.

Delivered at the Meeting of the International Medical Congress.

BY PROFESSOR VOLKMANN.

GENTLEMEN,—It is with hesitation and only in accordance with the wish of my London friends that I have undertaken to speak before such a distinguished assembly, and to make an attempt to sketch a hasty picture of the changes which surgery has experienced in the last fifteen or even ten years. And I trust that in this attempt I may rely on your kind indulgence; for great and unparalleled in the history of medical science have been those changes. Problems thousands of years old have been solved, or are at any rate approaching a sure solution; the desires of our fathers have been fulfilled beyond their hope or expectation. But all our practice and theories have been also fundamentally altered. The position of our science, the position that we ourselves occupy towards invalids, have become entirely different. And this revolution, in the midst of which we still stand, although the first wave has exhausted itself, has been called forth by the one incontestable fact, that all those countless and disastrous disturbances by which the wounds and hence also the life of those operated on or injured are threatened are only the consequences of particular processes of decomposition of the animal fluids, brought about by the intrusion of lower organisms.

For with the recognition of the manner of their origin, and with the knowledge of their nature, we have also gained the power of preventing these disturbances. Conscious of our aim, we are able so to act as to prevent the evil influences of these micro-organisms. The fate of countless invalids is from henceforth placed in our hands. In the place of blind chance, in the place of fortune or misfortune, which formerly played so great a part in the work of the practical surgeon, there now appear, in quite a different degree, knowledge and ignorance, capability and inability, care and carelessness. But a short time ago the surgeon, when he had, according to the rules of his art, made a wound, was like the husbandman who, when he has sown his field, patiently awaits the harvest, and accepts it as it may turn out, powerlessly exposed to the elements which may bring him rain and sunshine, storm and hail. Now he is the manufacturer from whom we expect good wares. By rescuing from the domain of chance the results of our labours, as far as they depend on operations and the treatment of wounds—and this will always remain the chief and especial work of surgery—the antiseptic method has elevated surgery to the rank of the latest experimental science.

Never has a discovery been made in surgery which has even approached this in its benefits to humanity in general. Many thousands of human beings have in the short space of time that has elapsed since then preserved life and limbs, and been spared pain and a long confinement to a sick-bed; and millions will yet share in these benefits, for the principles of the antiseptic treatment of wounds will *never* again be abandoned as long as the whole of our knowledge is not lost, no matter how our art or the points of attack may

change. Perhaps we may some day succeed in treating injured limbs simply in heated or filtered air, or may learn to strengthen the living power of resistance of the tissues and organs so that they can of themselves resist the action of those invisible enemies. The protection afforded by vaccination makes it appear possible that in this direction also new paths are opening out to us.

England may be proud that it was one of her sons whose name is inseparably connected with this the greatest advance that surgery has ever made. Without envy other nations may yield her the crown. For the long and silent labour which made the ripening of the seed possible, which we now reap so quickly and fully, was quite international, and especially France and Germany, took part in it in an equal degree. Nor did anyone more fully recognise the importance of those who worked before him than Mr. Joseph Lister.

Moreover, it has happened with the discovery of the antiseptic method as with so many great discoveries; years, sometimes centuries, prepare them, they are in the air as it were, until one day, to the surprise of mankind, they suddenly seem to fall down from heaven. Nothing is more instructive than to reflect the light of our present knowledge on the endeavours of past times, and to see how since the beginning of this century the most heterogeneous opinions have been held concerning the treatment of wounds; how methods apparently the most opposite have been employed, in all of which we may, however, now recognise a certain value—how wounds were treated with ice, with the cautery iron, with alcohol; how they were ventilated or hermetically closed; how the subcutaneous mode of operation was resorted to without deciding the question why the air coming into contact with the injured tissues of the body in one series of cases causes such deleterious results, in others appears perfectly harmless; how, seeking without any firm leading principle, experimenting and often abandoning oneself to the rudest empiricism, yet the goal was approached nearer and nearer—so near, that we might suppose it was almost possible even then to grasp the truth, and that everyone ought to have recognised it, and then, when daylight is approaching, and even when the chief problem has been solved, that then the complete failure of our art was shown by the adoption of the open treatment of wounds.

I consider the direction given by Stromeyer and Pirogoff, especially for gunshot wounds, and in their time perfectly justified, never to probe a fresh wound, is here carried out to actual nihilism, and, to our shame, proofs are given that with passive looking on and the renunciation of quick healing by first intention, with good cicatrising, the results were on an average better than in all active methods of treatment practised up to that time. Gentlemen, I wish not to be misunderstood. I do not mean that open treatment of wounds which is at this day employed in the most efficacious manner in combination with strictly antiseptic measures where the locality or serious disturbances already caused in the wound do not permit of the usual appliances, or where after an operation performed with all the means of protection which modern surgery affords us, we may so safely count upon a healing by first intention that further measures seem unnecessary. I will also point out that the German surgeon who first employed the open treatment of wounds and gave it its name, and achieved excellent results with it—Burow—introduced in connexion with it a remedy which we now know as one of the strongest antiseptics—i.e., the argilla acetica. But I speak of that open treatment of wounds which, rejecting all the attainments of modern surgery, was so emphatically lauded as a special method to be preferred to all other modes of treatment.

Gentlemen, in speaking of the open treatment of wounds, I have touched on the opposition which the new doctrine at first met with on so many sides. You all know well how violent this was. Even in science great changes cannot be brought about without injury to numerous personal interests. But I insist that nowadays no serious opposition exists, that there is no surgeon who would dare at the operating-table or in the treatment of the wounded quite to renounce antiseptic methods; who calmly and with a good conscience would tread the paths in which fifteen years ago we all followed like cattle. Even the most obstinate have had to give way to the great principles of the new era, and often in a much higher degree than they acknowledge to themselves or others; the necessity not only of the disinfection of hands, sponges, instruments, and bandages, but also the necessity of a primary disinfection of fresh wounds, is, I believe, universally acknowledged.

In this respect, then, the time that we have lived through stands alone. In a period of a few years a new revolutionising doctrine and a new difficult method of treatment which increases to the utmost the responsibility of the surgeon treating the case has celebrated its triumph through the whole of the educated world.

I hope you will think it natural if I, in the attempt to sketch the most essential points by which modern surgery differs from that of past times, place in the first rank the immense diminution of mortality after serious operations and severe injuries. It seems natural to prove the advances made in this respect by comparing the mortality under the old surgery with that of the present day. But in spite of all trouble and labour, the only result of such attempts is the conviction that our present results are incomparably better. How great used to be the average losses caused by important operations and serious injuries we shall never learn. One thing is certain, that they were much greater even than most of the available calculations made them appear. But this second fact is just as certain; that the calculation of averages had at that time scarcely any value, because the mortality was subject at different times, in different hospitals, and under different surgeons, to the most enormous variations, as a glance into the celebrated work of Malgaigne will show. Average numbers can only be of value when the variations take place within certain fixed limits. The high tables of mortality of old surgery have been obtained by the addition of series of cases which differed from one another fivefold or tenfold; and as soon as they were applied by the sick bed or in the judgment of the results of treatment, they let any result appear satisfactory, and, if fatal, excused it.

We may therefore say without exaggeration that the old statistics of surgery were of no use, but only did harm, and we may oppose to their sad, unsatisfactory figures the simple demand that *no* person should die of an injury unless its severity directly threatens his life, and that no person injured or operated on should perish through a secondary inflammatory disturbance developed from the wound. Every loss of this kind may be traced to some mistake on our part.

But we, who have ourselves groaned beneath the weight of the old surgery, and have now made the new our own, possess comparative statistics that are infinitely more valuable to us than all those that our opponents have held up against us, statistics which we have fought for in the last few years. The time is long enough to have excluded all the old theories of chance. During ten years it is not possible to be always lucky, always to have good cards, as even Pirogoff still ventured to assert of certain privileged surgeons.

And if we compare our former with our present results we find a difference like that between day and night, the feeling of a great victory after long and severe defeat; and never do I feel more solemnly and gratefully inclined to Providence, who has permitted me to live to see this blessed change, than when I make this comparison.

Professor Nussbaum has drawn this comparison between then and now in his clinic in clear traits and with manly candour; he has shown that for forty years, under his own direction as well as under that of his predecessors, among whom was Stromeyer, fatal wound diseases raged, that nearly all patients with compound fractures died of them, and that even those with the slightest injuries often succumbed to them; that erysipelas and abscess were matters of daily occurrence, that during the latter years hospital gangrene also appeared and attacked the dreadful number of eighty per cent. of all wounds and sores, that he stood helpless and powerless before all these conditions, and that at one step, after the general introduction of the antiseptic method, all this ceased, and instead, even after great operations, healing by first intention was introduced as an entirely new result.

I have also tried already at the third German Congress of Surgeons to draw a similar comparison; it is not essentially different from Nussbaum's. Since then many years have elapsed; and in all countries, but perhaps most of all in Germany, a great mass of experience has been collected, and it might perhaps be now possible by a comparison of large numbers to discover with some amount of certainty what is really the chief question; how far we have got in the control of accidental wound diseases; what dependence is to be placed on our present technical aids; where and how often they leave us in the lurch, and where the limits to our present power are placed. Time and

place do not permit me to make this attempt, and perhaps it would be beyond my power. But, with your permission, I will lay before you some few data bearing on these questions, and if I take these chiefly from my own experience, you may be convinced that this is only because these are most accessible to me, and because I can myself vouch for their accuracy. For the satisfaction of personal vanity I should probably have chosen another subject than this which shows what can be achieved by a method in the invention of which I had no share, and should have brought forward other results than those which were only achieved by submitting entirely during the first years to the prescriptions of Joseph Lister, and resisting every temptation to do better and more simply than he. Most of the unfavourable judgments passed on this method are due to the fact that surgeons who had not yet learnt to experiment *with it* already made *it* the subject of their experiments.

Two examples will suffice, compound fractures and major amputations. The mortality after compound fracture had, during the long labours of my predecessor as well as during my own, reached the sad height of forty per cent. When I adopted the antiseptic treatment of wounds my last twelve patients, with compound fracture of the leg, had all died of pyæmia or septicæmia. From that time up to the present day I have treated one after another 135 compound fractures, and not a single patient has succumbed to either of those accidental wound diseases; 133 were cured, two died, one of fat-embolism of the lungs, during the first few hours, and one, a drunkard, of delirium tremens.

For amputations one assertion will almost suffice, which I beg you to regard seriously; I now cure every year more cases of amputation of the thigh than during all the rest of my labours before the introduction of the antiseptic method. The number of the amputations of the larger limbs which I have undertaken during the last few years amounts to more than 400. If I subtract those cases where death did certainly not result in consequence of the operation, but independently of this from some other serious complication, there results a mortality of four to five per cent., and the same number, as far as I can discover from the communications before me, was obtained in the other German hospitals in which antiseptic surgery is practised in full strength.

My friend Dr. Schede has made a calculation which will, I believe, interest you. He has studied the reports of a great number of amputation cases of the old period, so that he was able to distinguish those in which death resulted from pyæmia or septicæmia—those therefore which we now save—and the mortality of the remaining cases also amounted to about 5 per cent. In these 4 to 5 per cents., besides those fatal cases caused by mistakes in treatment, those are also included which in amputations after serious injuries must be laid to the door of the shock caused by the previous serious loss of blood. We may therefore declare that amputation of the larger limbs has been almost absolutely free from danger—at any rate, much less dangerous than many small operations were formerly, whose mortality was never discussed. After extirpation of sebaceous cysts in the head, occasionally one or other of those operated on perished; and a by no means small part came off only with their lives. It is true, I must not disguise the fact, that my numbers have been slighted. It as been said that I kept back the unfavourable cases, and thus improved my figures of mortality. Quite lately a French colleague of mine declared that in France it would not be possible to agree to my sort of statistics!

But, gentlemen, what do we want? Do we want to count the amputated limbs like fallen apples, which are picked up from under the trees? Or do we want to gain figures that answer questions which have a practical importance? If we want to know how dangerous *per se* is amputation at the upper part of the thigh, we cannot learn this from the patients who already suffer from severe septicæmia, or who, besides, suffer from severe brain injuries; and if we want to know how dangerous it is to remove *one* thigh, we cannot make use of cases where both have been amputated. But I will not complicate these statistics in order, as my opponents say, to contrast the most favourable with the most conceivably unfavourable cases. During the time of which I speak 57 large limbs were amputated—lost according to common parlance—because of acute progressive septic processes, chiefly patients with severe open fractures, wounds of the joints, and laceration of the soft parts, who were brought to us too late from the country, cases of embolic mortification and large putrid abscesses. All patients in whom signs of mortification had shown themselves, not counted. Of these 57 amputated cases, in which, in almost half the cases, the operation concerned the thigh, fully 70 per cent. were cured. A mortality of 30 per cent. is lower than I formerly attained to in cases of primary amputation. It shows best how erroneous are the views of those who contend that antiseptic surgery can only attain results in prophylaxis. Far more rapidly than by means of figures and a survey of successes, we can attain to a comprehension of the enormous advance achieved by modern surgery when we see what is actually done in the domain of operations—what is held permissible, and what is done and risked daily without danger to the patient. For this it is not needful to be a surgeon, not even a doctor, in order to testify to the changes that have come about. Operations are now conducted which fifteen years ago would have been regarded as madness, or as crimes. And often it is the younger doctors who have not had much experience of independent practice who have this advantage over their more venerable colleagues—that they have faith in the infallibility of the antiseptic principle, and have a courage that has not yet been daunted by ill-success; and it is they who venture upon operations of which formerly the most daring surgeons did not think, and attain results concerning which these shake their heads.

But do you think, gentlemen, that one of us older ones could so easily take up the idea of Ogston's operation? For this one must be young, and have grown up in the new thoughts and surroundings, and only know the sad experiences of older surgery as a legend. It is far from me to wish to discuss the value of the operation for the cure of genu valgum. I only wish to show from what one does not shrink. It will always remain of historical interest that, a few years after a great war, in which we were obliged to let the greater number of our wounded die in whom a ball had pierced the knee-joint capsule without hurting the bones; we dared to saw off in the dark within the joint a condyle, leaving blood and sawdust behind. Further, it would be easy to produce numbers of as apparently venturesome operations of which no one doubts the necessity or that they should be permitted.

For a large enchondroma in the costal pleura that occupied the left wall of the thorax, Professor Fischer removed a large piece of the chest-wall and ribs, so that the heart and lungs were exposed and an opening as large as a child's head was made, and yet the patient was able to be discharged from the hospital after four weeks.

In the case of a large echinococcus of the liver, which in front and at the side was covered with thick layers of liver tissue, and which projected into the thoracic cavity after resection of the seventh rib I opened the healthy pleural cavity, which was free from adhesions. The thorax was freely open, the thinned diaphragm cut into, the echinococcus sac opened, the animal bladder extracted *in toto*, and the patient recovered without complication. A similar operation, with like results, was conducted by Mr. Israel of Berlin. Mr. Hahn, also of Berlin, in two cases of wandering kidney, where the mobility and the discomfort induced thereby had attained an unusually high degree, drew out the organ in question through a large wound in the loin, and sewed it into the same. Both patients recovered and lost their pain. The opening of the joints seems a most innocent performance. Hips and knees are cut open in order, in a case of luxation, to search for the obstacle which opposes itself to reduction, in order to suture the ruptured tissues, and in obscure symptoms to clear up the diagnosis *in vivo* by means of autopsy. More than 200 times I alone, without in one instance bad results following, have incised, drained, and washed out diseased knee-joints without exciting suppuration.

Bone and marrow tissue will submit to every kind of treatment without putrefying and without suppuration. Orthopædics celebrated their greatest triumphs in the saving and straightening of limbs. We read that Mr. McEwen alone has performed 835 osteotomies, of which 827 were healed without suppuration, and he lost no patient from the operation itself or from its consequences. To facilitate the healing of empyæmic cavities, Mr. Schneider resected from 6 to 9 ribs, and even also the clavicle. In very painful cases of syphilitic hyperostosis I myself have repeatedly exposed the tibia in its whole length, and knocked off with a chisel a whole handful of bone shavings. The cure was rapid; the pains disappeared. The old opinion that in cases of strumous suppuration wounds heal less well has been set aside—the largest scro-

fulous abscesses, even if they come from the spinal column, can be opened not only without danger, but often healed in a brief time through a special kind of first intention. The feat of excision of part of the stomach has excited the whole world, perhaps to excess, since the same operation has been already effected upon the intestines with the happiest results. Weak, paralysed persons, who usually are anxiously shielded from every injury, have had their main nervous system exposed, to subject it to thorough manipulation.

And now leave the writings and let us realise the teachings of the greatest masters of the first half of this century, of those who were equally great as doctors and as men; for instance, Sir Astley Cooper, whom we may regard as the representative of the highest development of the older surgeons, and you will be convinced that their firm and leading principle, the moral standpoint on which they stood was this, that every operation is dangerous, and should if possible be avoided. There is not one of us who, led by B. von Langenbeck, did not stand on the same ground during the great wars of 1866 and 1870, in his treatment of the wounded. Only since 1870 the new views have forcibly made their way.

Cast a glance at the surgical clinics of hospitals, where these are conducted by men who have willingly given up the hardly won results of their own work, and have entirely adopted the knowledge and power of our new art, and here too you will see the greatest changes; cases of operations and wounds without fever and pain, a happy result being regarded as certain; no traces of blood and wound secretions on the bandages, let alone on the body and bed linen; disappearance of that incessant activity of untrustworthy and senseless assistants, the continuous putting on and taking off of compresses and cataplasms, the regular change of bandages repeated every morning and evening. It would thus appear that in association with anæsthetics and the bloodless method, antiseptic surgery has deprived all important operations of their terrors. Certainly the preparations for an operation are often tedious, the first cleansing and preparation of a fresh wound circumstantial and lengthy, but with the first dressing an immense amount of work has been obviated, which formerly extended over the following weeks and months. The later course, the fate of the wounds of the patient, is as a rule determined and assured by this first dressing; we can often heal an amputation wound with one or two dressings.

Our views on the nature of contagia in the surgical department of hospitals, on their origin and breeding places, have entirely changed. There is no hospital that is so bad that it can excuse failure in the treatment of wounded and operated patients. If we had no other task in the treatment of our sick but to guard against the purely relative interruptions of the normal process of wound healing, we could be content with the old close and over-filled houses, and the splendid piles we now erect would be superfluous. We well know plague-stricken hospitals where, from wound to wound, from sponge to sponge, from compress to compress, fungous formations in countless generations have grown to the highest degree of adaptation to the fluids and wound secretions of the human body. But it lies in our power to disinfect them. By no ventilation in the world can septicæmia, pyæmia, and erysipelas be blown out of the hospitals; not even by the most assiduous care in ordinary life can they be avoided, but only by the conscientiousness and prudence of the surgeon. If ever the excellent Simpson was right in his assertion that far more operated patients die in hospitals than in private practice, modern surgery may rather declare the contrary. If there is any danger of a mistake in the treatment of a wound, it is more likely to happen in a private house where it is more difficult to satisfy the accurate demands of modern surgery than in the hospitals.

Gentlemen, weighty circumstances and daily occurrences have always made surgeons as well as laymen recognise the importance of those problems which are solved by the discovery of the mycotic nature of wound diseases. The contrast between open and subcutaneous wounds must have been known as long as men have worked hard and have fought each other with weapons. And not only was this known, that simple fractures are not dangerous and heal without suppuration, but also the experience had been gained that there will be no suppuration, no matter if the individual concerned is young or old, robust or decrepid, scrofulous or syphilitic—whether he has this or that constitutional condition, this or that individual disposition. And this also has long been known, that the danger in a compound fracture is very great; if only on the lower thigh the skin, very poorly supplied by nerves and vessels and scarcely for an inch in area be sharply perforated by one of the fractured ends. But the consequences of these facts were not seen. They were too much opposed to the prevailing doctrine which regarded not only the suppuration, but also the serious disturbances resulting from it, as only *quantitative* increase of the process of reaction following on the injury. The whole of antiphlogistic therapeutics was based on this supposition. And yet the history of fractures might long ago have afforded the most conclusive proofs that it could not be the intensity and extent of the injuries of the tissue which determine the severity of the inflammation and the suppuration, that these latter had in reality nothing to do with the traumatic reaction, but must be some other thing essentially different. For even a good number of simple fractures are by no means such simple things as was formerly imagined, since they often do not occur without serious crushing of the marrow, tearing off of the periosteum, laceration of muscles, fissures, and splinters; certain forms of fracture, especially those of the cervix femoris, and of the spine, are good examples of destruction and crushing of the tissues. And yet even in these cases, suppuration of the greatest intensity does not occur. To attain the conviction that mechanical obnoxious influences, however severe, cannot of themselves produce suppuration, no myologic examination would have been required. The importance of this fact was only revealed to me in its full bearings in examining the wounded on the Bohemian battle-fields. Among the great number of gunshot fractures which I had to treat there there was a not inconsiderable number of cases where cure resulted after the usual course, as after a subcutaneous fracture without suppuration and without discharge of splinters; and I considered it obvious that here only that explanation was admissible which Stromeyer had given to these cases—namely, that the ball, passing at a tangent, had broken the bone flat, as in the simplest subcutaneous fracture. But of those so successfully cured, two of those who had been injured in the upper part of the thigh died from the results of other wounds inflicted at the same time; and when I examined these supposed bone-fractures, I found to my surprise that just here the most extensive destruction had taken place. In the one case twelve splinters, in the other about twenty, of a size varying from several inches to that of a pea, were caked together by fresh callus without any suppuration or necrosis, and in another similar case there lay firmly enclosed in the callus a little piece of cloth from the uniform.

Then, in the year 1870 Professor Klebs discovered that even in the internal organs, which are considered so vulnerable—as brain, lungs, and spleen,—no inflammatory reaction occurs, if the path of the bullet is so long and narrow that it prevents the admission of air; and that even weeks afterwards, macroscopically, no changes can be traced in the tissues shot through, while microscopically the process of healing can only be recognised by a minimum of cellular activity.

And now antiseptic experiments which exclusively belong to Mr. Joseph Lister, to whom I therefore here offer a small part of the gratitude that German surgery owes him, show us that, after an amputation, on the fourth or sixth day the ends hang down in just as limp and unchanged a manner as immediately after the operation, just as if it had been performed on a dead body and not on a living being; that after a great plastic operation, in spite of countless sutures, no trace of œdema or reddening, and no pain, occur. India-rubber tubes passed through dropsical joints may remain lying there for weeks without causing suppuration, and they may, slipped unnoticed into the cavity, heal so firmly into the armpit that a year after they may be mistaken for well-defined cancer tubercles, and be extirpated. Into the open peritoneal cavity a piece of gauze larger than a table napkin, and pressed together like a handkerchief, can be put, and remain for several days, without fever or clinical appearances of fever resulting. And I should like to mention one more experiment, which, it is true, will not always succeed. Suppose we have a case of limited fistulous caries of the foot before us; five or six times we introduce the glowing Pacquelin cautery iron to the depth of an inch and a half, and carbonise the dissected tissues. Then we cut the skin in a circle round the former fistula at a breadth of two lines, and let the blood, mixed with a disinfecting fluid, flow into the deep spherical

cavity, fill it out, and coagulate. In a fortnight or three weeks the upper layer of the coagulum scales off, and the burn is cicatrised without any reaction, suppuration, or falling off of the scab. So that in man also Professor Hueter's five experiments on animals are confirmed.

After such facts, there can be no further doubt that we have hitherto studied traumatic reaction of open wounds on tissues infected at the same time that the four cardinal symptoms of inflammation—robor, calor, tumor, dolor, even in the severest open wounds—are not developed when disturbing agencies have no access, or do not find soil fitted for their development.

Seriously, we have now to consider the question whether mechanical irritations, such as the surgeon's knife and saw cause, and the injuries of the social life, are at all capable of alone bringing about those processes which have at all times been designated as inflammatory.

I do not consider this latter question as yet fit for decision, although the extreme radicals already advance weighty reasons to refuse even to thermic and chemical irritants the power of causing inflammation; so long as in the erythema of burns and the dermatitis from iodine painting associated with abundant exudation of leucocytes the influence of organic germs is not proved, and so long as the same proof is wanting for carbolic erythema, I believe that we ought at any rate to wait for the results of further investigations.

Gentlemen, I have touched on traumatic reaction of the tissues to show how distinctly modern times have influenced even the oldest dogmas of our science; how we are obliged to abandon almost everything that our schools have taught us in order to gain for our scientific opinions a newer, firmer foundation.

I am coming to an end. I have already occupied your attention for a longer time than may appear fitting to some of you. I have spoken of the advances in surgery. There is one I have not yet mentioned. It has never hitherto been so deeply and universally realised that the interests of our practice must coincide entirely with those of our patients; never before was the feeling of responsibility for our actions so great as at the present day. The breach which divides us from the older surgeons is immense here. We do not refuse to let our capability be entirely measured by our successes. For even if the surgeon of former times willingly submitted to this measure, when it was only a subcutaneous fracture without essential displacement or the straightening of a club-foot that was to be dealt with, yet, as soon as it was a matter of preserving life after an operation, or even of preventing serious disturbances, he might decidedly reject this standard. No surgeon, however learned and skilful he might be, would have been willing then to promise or guarantee, or in case of ill-success to reproach himself; he is almost certain in this important point to have, like every other surgeon, the sad privilege of not being responsible for uncontrollable circumstances.

To-day we may say with the deepest conviction that the surgeon is responsible for every disturbance that occurs in a wound; that it is his fault if even the slightest reaction or redness is developed in it, or if an amputation is not healed by first intention. He must reproach himself severely if after an operation bagging of pus occurs, and especially if death occurs from pyæmia. He who cannot attain to this degree of perfection may be converted from his former method of treatment to antiseptic methods like one who, having hitherto always prescribed senega for catarrh, now uses ipecacuanha. Of the storm that has swept over the fields of surgery during the past ten years he has not experienced a breath.

Justice requires us to recognise that the higher moral aspect of this question has come to us from England. It was the English ovariotomists, with Mr. Spencer Wells at their head, who first showed us how to approach an operation at that time looked on as fatal, how to take on oneself the whole responsibility of success or failure, and to keep no other goal in view than this one, to save the patient, and, by a constantly improving and perfecting of our art and carefully keeping everything injurious at a distance, gradually to become more and more master of one's actions. At that time we began to recognise that at the operating-table there are other matters of importance than to shine by quickness, elegance, and security in the use of the knife.

Yes, gentlemen, our labours have become more blessed and more joyful. We know that a great responsibility rests upon us, but we also know that with honest will, knowledge of our subject, and use of all our powers, we are able to satisfy its demands. And because we believe that this feeling of responsibility is living and constantly increasing in the younger generation, we trust that surgery will overcome the dangers that doubtless lie in the rapid changes it has experienced, and is being led towards a further development.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

CHARING-CROSS HOSPITAL.

AORTIC OBSTRUCTION; AORTIC INCOMPETENCE; DEATH.

(Under the care of Dr. POLLOCK.)

FOR the notes of the following case we are indebted to Mr. Albert Leahy, the medical registrar.

J. E——, aged forty, a butler, was admitted into the medical wards on April 26th, 1881, with the following history:—For the previous two months he had been suffering from palpitation and pain in the præcordial region, much increased by any exertion. His breath had been short for some months, and he had a severe cough in the winter, and once during a violent paroxysm of coughing brought up a small quantity of blood. He was subject to attacks of epistaxis, and occasionally felt rather giddy. The most careful inquiries failed to elicit any history of an attack of acute rheumatism during any period of his life.

On examination he was found to be a well-developed, strong, healthy-looking man. His appetite was very good, and he complained only of pain of a stabbing character, which was intermittent, and situated just below his left nipple. There was not any œdema of the lower extremities; his bowels were regular; he passed fifty-five ounces of urine in the twenty-four hours, which was acid in reaction, sp. gr. 1020, and did not contain any albumen; pulse 80, distinctly water-hammer; some inspiratory dyspnœa. There was slight bulging of the præcordial region, together with pulsation in the epigastric region. The apex impulse was displaced downwards and outwards into the sixth interspace, distinctly heaving in character, and rather prolonged. At the base two bruits were distinctly audible, one accompanying the first sound, and conducted up into the big vessels of the neck; the other accompanying and almost obliterating the second sound, and distinctly conducted down the sternum. There was also some muffling of the first sound at the apex, but it hardly amounted to a murmur.

April 28th.—He was ordered an expectorant mixture with thirty minims of infusion of digitalis every four hours.

On the 30th the pain was very much easier, and the patient felt much better, though he complained of a "stuffy" feeling in his head, and ringing noises in his ears.

On May 5th he was suddenly seized with dyspnœa in the night, and became very livid. During the attack he complained much of pain under the right scapula.

On the 7th he was much better; slept and ate well, and was anxious to know when he might leave the hospital. He was quite free from pain.

On the 11th whilst sitting up in bed, he was suddenly seized with dyspnœa, and called out, but before anyone could render assistance he had fallen back, and was dead.

Necropsy, twenty-six hours after death.—External appearances: Body well nourished; rigor mortis well marked; height 5 feet 5 inches; considerable post-mortem lividity; no marks of external violence. The pericardium contained a small quantity of clear serous fluid, and its serous layer was thickened and opaque. The outer surface of the right ventricle presented a patch of old pericarditis. The outer surface of the organ had a considerable quantity of fat upon

it. The right and left ventricles were both filled with dark clotted blood. The pulmonary artery was empty. The left auricle was dilated, and its wall much thinned. The interior of the left ventricle presented a pale fibrinous clot, the wall was much thickened, and the muscular tissue was soft and easily lacerable. The mitral orifice was dilated, admitting the four fingers, and the anterior cusp of the mitral valve was corrugated, thickened, and contracted. The aorta was slightly dilated opposite the situation of the sinus magnus, and its inner surface was the seat of advanced atheromatous change. The aortic semilunar valves were markedly diseased, all the three being much thickened and contracted, and presented numerous nodules upon their upper and lower surfaces. The heart weighed fourteen ounces.

Dr. Pollock remarked with reference to this case that it was a good illustration of the dangerous character of aortic regurgitant mischief. The patient was actually getting better, and hopes were entertained of his soon leaving the hospital when the fatal paroxysm occurred.

GENERAL HOSPITAL, NOTTINGHAM.

CASE OF ACUTE TRAUMATIC TETANUS TREATED BY CALABAR BEAN AND CHLORAL HYDRATE; RECOVERY; REMARKS.

(Under the care of Mr. WRIGHT.)

FOR the following interesting notes we are indebted to Mr. A. R. Anderson, resident surgeon.

On Jan. 13th, J. M——, aged eighteen, attended the hospital in consequence of having had the ends of the middle- and ring-fingers of the left hand cut with a knife, worked by machinery, a short time before. When seen in the surgery there was a clean incised wound extending across the back of each of these fingers a little to the distal side of the last joint; in both the extensor tendons were cut through and the phalanges were completely divided through the base. A flap was cut from the palmar surface where the skin was sound, the finger-ends were removed, and the flaps were turned up and retained in position by horsehair sutures, and a dressing of carbolic oil was applied.

The healing of the wounds went on uninterruptedly and well, there being no indication that anything untoward was about to happen until Wednesday, Jan. 26th, when the man found at dinner-time that he could not open his mouth well, owing to stiffness of his jaws. On the Friday following he attended the surgery, to have his fingers dressed, and was then suffering from inability to open his jaws, together with stiffness of the neck and pain referred to the epigastric region, but as he made no complaint (believing it to be a cold), he went home, and attended again as usual on Monday, Jan. 31st, when he mentioned the above symptoms and was at once admitted into the hospital.

The masseters were at this time visibly affected, firm, and hard. The man could open his mouth only to such an extent as to separate the teeth about one-third of an inch; the angles of the mouth were drawn upwards and outwards, and imparted a smiling expression to his face, which contrasted strangely with the frown (due to contraction of the corrugator supercilii) which became well marked during the exacerbations. The expression of his face as a whole was anxious. The sterno-mastoid and trapezius muscles on each side were in a state of spasm, but were not severely affected, and the spasm was more evident in the latter muscle than in the former. He could move his head from side to side, but with pain and difficulty. The muscles of the back and abdomen were not noticeably implicated at this time, but he had occasional cramps (spasm of diaphragm) referred to the pit of the stomach, and provoked by any attempt to draw a deep breath. The muscles of the legs and arms were in a condition almost normal. The wounds on the fingers had nearly healed—indeed, in the one on the ring-finger the process was complete; in the middle-finger a small unhealed spot existed in the centre of the scar. There was no tenderness or redness or swelling in the parts, nor had there been any pain or other discomfort felt in the left hand or arm. A dressing of boracic ointment was substituted for the carbolised oil lint.

He got no sleep whatever during the night, being kept awake by frequent spasms, and next morning, Feb. 1st, the condition of his face and neck was unaltered, but the muscles of the back were clearly affected, there being now a sufficiently well marked opisthotonos. He perspired freely. The tongue was slightly furred. He was ordered strong beef-tea, brandy, milk and eggs, which he took fairly well. Pulse 100. At 5 P.M. he commenced to take $\frac{1}{12}$ gr. of the extract of Calabar bean in a teaspoonful of water every four hours. He passed another sleepless night, and on Feb. 2nd the abdominal muscles had become hard and rigid, and the exacerbations had increased in severity and frequency, especially the diaphragmatic spasm. At 3.45 P.M. an eighth of a grain of the extract, in the form of a pill, was ordered every half hour. Patient was sweating freely. Pulse 106.

On the 3rd the symptoms were more fully developed, the spasms very frequent and violent, and affected chiefly the muscles of the back. Opisthotonos was well marked. He had little sleep during the night, but continued to take fluid food well. There was no laryngeal spasm. To take a quarter of a grain of the Calabar bean extract every half hour. Pulse 118.

Date.	No. of Spasms in 24 hs.	Medicine taken in 24 hours.		General Condition, &c.
		Extract of Calabar Bean.	Chloral Hydrate.	
Feb. 6th	*	20 grs.	50 grs.	Condition unchanged. Slept for several hours after enema.
7th	†	24 grs.	50 grs.	Abdominal muscles not so rigid.
8th	‡	24 grs.	50 grs.	Could open his mouth wider. Muscles less rigid. Altogether more comfortable. Pupils moderately contracted. Slept for seven hours and a half.
9th	34	24 grs.	50 grs.	Took food better. Less pain, especially diaphragmatic. Six hours' sleep.
10th	24	22½ grs.	50 grs.	Felt decidedly better. Less pain; less opisthotonos. Abdominal muscles softer. The pupils kept slightly contracted. Slept for eight hours and a half.
11th	13	18 grs.	50 grs. §	Slept well during the night. Awakened every hour for medicine.
12th	9	12½ grs.	50 grs.	Opened mouth better. Slept well. Contraction of pupils no longer apparent.
13th	24	12 grs.	40 grs.	A simple enema was given, which was followed by an increase in the number of convulsions; fifteen occurred during the next four hours. Slept after the chloral. Bowels freely moved.
14th	16	12 grs.	40 grs.	Did not sleep so well.
15th	13	12 grs.	40 grs.	Muscles still rigid, especially abdominal.
16th	29	12 grs.	40 grs.	Complained of more epigastric pain. Opisthotonos persistent.
17th	45	12 grs.	80 grs.	Was purged three times after the chloral enema, followed each time by convulsions. Wound dressed; it soundly healed.
18th	16	12 grs.	40 grs.	Was able to open his mouth to-day wider than he had yet done. Risus lost. Managed to eat a little meat.
19th	4	12 grs.	40 grs.	Felt much better. Took food and slept well.
20th	None	0 grs.	40 grs.	Patient was slightly delirious during the evening.
21st	17	None	None	Delirious during the night.
22nd	19	,,	40 grs.	Delirium gone. Slept better. Bowels opened twice. Abdominal and facial muscles less rigid.
23rd	26	,,	40 grs.	Slept badly. Ordered 4 oz. of brandy, and mutton chop for dinner.
24th	8	,,	40 grs.	Bowels opened three times. Could open his mouth widely.
25th	20	,,	40 grs.	Did not sleep so well.
26th	9	,,	None	Better. Stiffness of abdominal muscles much diminished; some rigidity remained in the spinal muscles.
27th	9	,,	,,	Going on well.
28th	9	,,	,,	Bowels opened twice. Took food well. Pain almost gone.
March 1st	3	,,	,,	Condition unaltered. Eats and sleeps well.
2nd	1	,,	,,	

* On Feb. 6th the spasms occurred every few minutes.
† On Feb. 7th the spasms were not counted; they were, however, very frequent.
‡ Spasms not counted on the 8th; less frequent than on the 7th.
§ Night and morning.

On the 4th there was no material change in the condition; he passed a very restless night and was ordered in the afternoon an enema containing forty grains of chloral hydrate, after which he got four hours' sleep. On the following day the rigidity of the muscles had in no way lessened, and much complaint was made of epigastric pain; the spasms, too, were, if anything, more violent. The pupils were natural. To take one-third of a grain of the extract every half hour.

The opposite Table shows the subsequent history of the case more readily and clearly than any description could do. The careful and accurate record of the number of the convulsive attacks was taken by the sister and nurses who watched the patient day and night.

No further spasms occurred, but some stiffness remained in the spinal muscles for a few days. He progressed rapidly towards convalescence, and was discharged well on April 13th.

Remarks.—The above case may be fairly called one of acute tetanus. It is true the first indications of the disease did not appear until the thirteenth day after the injury, and also that there was neither laryngeal nor pharyngeal spasm nor pyrexia; but the spasms of the voluntary muscles and the diaphragmatic spasms were as frequent and as severe as those seen in the worst cases of this disease. In twenty days this patient took 290 grains of the extract of Calabar bean. The administration was commenced by giving very small quantities, $\frac{1}{12}$th of a grain every four hours, the dose being steadily increased to one grain an hour. A remarkable tolerance of the drug was shown; it was only during the short period whilst he was taking twenty-four grains in as many hours that any physiological or other action became apparent, the contraction of the pupil being at that time but feebly marked, and quickly disappearing altogether. Ringer, in his work on "Therapeutics," speaking of the employment of Calabar bean in tetanus, says, "For the drug to be of any use it must be given in quantity sufficient to produce paralysis, and must be given, indeed, to such an extent that but little more would permanently arrest breathing." Now, although in this instance it was at no time pushed quite to this extent, yet the history of the foregoing case clearly confirms what Dr. Ringer says on the subject. Reference to the Table will show that whilst taking twenty to twenty-four grains a day, not only was the number of spasms reduced very considerably and rapidly, but the rigidity of the muscles and general suffering were also perceptibly lessened, and this, too, at the most critical part of his illness. On Feb. 13th the dose was diminished to twelve grains in the twenty-four hours, and after this date the drug did not appear to exercise much influence on the further course of the disease.

The chloral hydrate enema, which was given with the object of procuring sleep, seldom failed to accomplish its purpose. With regard to the temperature, the highest point reached was 102° F., and during the last fortnight of the disease, from Feb. 17th to March 3rd, it ranged from 97° to 98° F. in the axilla. It was remarkable how readily the healing process was effected, and what complete absence there was of any pain or signs of irritation in the wounded part.

BRITISH MEDICAL ASSOCIATION.

THE Forty-ninth Annual Meeting of this Association commenced at Ryde on the 9th inst. Owing probably to the day being also the closing day of the International Congress, there were not many metropolitan members present at the first general meeting in the Town Hall in the evening. Professor Humphry, the president of the Association, took the chair, and was supported by Sir George Burrows, Dr. Wade Dr. Bernhardt, Dr. Alf. Carpenter, Mr. Husband, and Dr. B. Foster. The proceedings commenced with the unanimous election of Mr. Benjamin Barrow of Ryde as president for the ensuing year, and in a few well-chosen words Professor Humphry handed over his office to his successor.

Mr. Barrow then delivered the customary presidential address, which travelled over very wide ground indeed. After a brief reference to those who had died during the past year, Ceely, Falconer, Hudson, Sanders, Andrew Wood, Henry Day, and Rolleston, he proceeded to explain the attractions offered by the Island to its visitors, and combated the criticism recently passed upon its sanitary condition by Dr. Ballard, inviting the members to inspect for themselves the arrangements made for its water-supply and drainage. Passing then to the chief subject-matter of his address, which consisted in a vindication of the medical calling, he reviewed the history of medicine from remote antiquity to the present day; touched upon the subjects of medical education and other burning topics; in medical education Mr. Barrow looked forward to the establishment of one conjoint board of examination. Upon the temperance question he warmly reproved those who censured the medical man for prescribing alcohol, which he said was often a most essential part of treatment. He also firmly denounced the agitation against vaccination (expressing the hope that legislation would become more stringent), against the Contagious Diseases Acts and against vivisection, and deprecated the present craze for the medical education of women, which he maintained was unfitting women for their real duties in life. He also touched upon the religious side of the profession, and concluded a lengthy address by reference to questions of medical ethics recently brought prominently under notice. In so doing he warned his audience against the evil of professional jealousy; and whilst admitting that homœopathy was not charlatanism, said that consultations between homœopaths and the orthodox practitioner were impossible from the lack of common ground, but that when a practitioner announced that he had abandoned the path of homœopathy and consented to place himself under the direction of the consultant, no blame could be attached to the latter in responding to the invitation to take charge of a case.

Mr. Fowler, the general secretary, then read the annual report of the Council, which stated, among other things, that the roll of members now reached 9202, and that the next meeting would take place at Worcester, 1882 being the jubilee year of the Association, and Worcester the town where it was first started by Sir Charles Hastings. The last passage of the report ran as follows:—"In conclusion your Council congratulate you that, whether in point of members, earnest and effectual scientific work, public influence, journalistic efficiency, or material prosperity as tested by its balance-sheet, the British Medical Association has never held a more commanding position."

The adoption of the Report was moved by Dr. Carpenter, who said that invitations for the 1883 meeting had been received from Liverpool and Glasgow. Dr. Davie seconded the motion, and after a protest from Dr. Haddon, who urged that the paragraph above quoted conveyed matters of *opinion*, especially as to the questions of "scientific work" and "public influence" and pointing out that the journal did not always express the opinion of the members on critical questions, the motion was adopted by a large majority. Dr. Carpenter said that the very differences of opinion upon such subjects being a necessity of the Association, the journal and Finance Committee always discussed such questions before publication.

Dr. Wade was elected Treasurer, *vice* Mr. Husband resigned; and the report of the Scientific Grants Committee was adopted on the motion of Dr. Humphry.

On Wednesday, August 10th, the proceedings commenced at ten o'clock by a general meeting in the Town Hall, under the presidency of Dr. Benjamin Barrow. Dr. Carpenter resigned the office of President of the Council, which he has held for many years; and a special resolution was passed not only awarding him a vote of thanks for his long and arduous labours, but electing him vice-president of the Association for life. Worcester was chosen as the meeting place next year, and Dr. Strange was nominated president-elect. It was also decided to hold the 1883 meeting in Liverpool, and that of 1884 in Glasgow.

Dr Bristowe then proceeded to deliver the address in Medicine. After pointing out the erroneous views generally held in comparing medicine to the exact sciences, and the forgetfulness often shown that a science of treatment of disease must be based on our knowledge of the functions of the healthy body, he proceeded to take homœopathy as the subject of his address. Hahnemann, who was chiefly devoted to the study of the natural sciences, had based his views on the nature of disease and the action of remedies upon the scholastic doctrines prevalent from the earliest days, that symptoms were the diseases themselves, and that they might be subject to treatment on general therapeutical laws. It was Hahnemann who applied the term "allopathy" to the treatment of disease by remedies

having a directly opposite effect to the symptoms for which they were prescribed, and he created "homœopathy" in opposition to this, because in many instances drugs capable of producing symptoms could control such symptoms when occurring in disease. It was the universal application of a few isolated facts that was the great error in this view, and no one who had any knowledge of anatomy or physiology or of the etiology of disease could have enunciated it. But the "system" took no cognisance of causes—it mattered not whether an ascites arose from cirrhosis or from peritoneal tubercle, a colic from undigested matters or from a cancerous stricture, a paraplegia from organic disease or from hysteria—the symptom itself was alone considered. Hahnemann went even further, refusing to admit the distinction between diseases, and for him preventive medicine, which deals with the *causes* of disease, would have been a delusion and a snare. So also morbid anatomy had no meaning for him, and each individual case becomes simply a mosaic of symptoms. Such a mixture of truth and error gives error currency, and Hahnemann's views on the nature of disease are subservient to his therapeutical views, so that he converted the entire range of disease and therapeutics into a kind of Chinese puzzle. He allowed his imagination to run wild, and believed his own fancies to be an inspiration from Heaven. He maintained that the English "sweating disease" was cured by homœopathy—by the use of sudorifics—just as in the present day credit is claimed for a special treatment of any epidemic because it happens to be introduced as the epidemic is dying out. One of his followers cited the successful treatment of high fever by the hot bath as proof of homœopathy, not knowing that the temperature of the patient must have been higher than that of the water, and unconsciously practising allopathy. Vaccination was claimed by Hahnemann as proof of his doctrine simply believing that it was a *cure* for variola. His treatment of itch by the *internal* administration of small doses of sulphur is an instance of the absurdity to which he carried his views; but probably, as in the case of internal parasites, if he had known of the itch-insect he would have looked on its presence as accessory to and not casual of the eruption. His recommendations to listen carefully to every detail the patient gave of his case was most unpractical and contrary to science, and his doctrine of infinitesimals was wholly unscientific. Turning to the homœopaths of the present day Dr. Bristowe said that, owing probably to their education, they mostly abandoned the extravagances of the system, and many had extended it to the hypothesis that all medicines have opposite effects when given in large and in small doses—a position which seemed a direct contradiction of knowledge. The strong feeling of hostility on the part of the orthodox practitioners towards homœopathy was not to be wondered at; Hahnemann had poured contempt on the "allopath," and the variance had been maintained. But the literature, schools, and personal attainments of many of them showed they could not be all charlatans, that many were honest, able, and cultured men, some having high medical degrees. And if honest and educated, were they to be scouted because of their belief? He was only pushing his arguments logically, and he could not expect that all would agree with him, when he argued that the homœopath, if honest and well informed should be treated as such, and that the dignity of the profession would be better considered in so treating than by direct opposition. We have nothing to fear for medicine. By persecution, bigots are made martyrs; but take away antagonism against any party or sect, and its spread ceases. If homœopathy were false, as he believed it to be, it could not survive. Dr. Bristowe in concluding his address was enthusiastically cheered.

Dr. Davey proposed a vote of thanks to Dr. Bristowe, and Dr. Long Fox in seconding the motion was supported by much cheering in declaring his disagreement from the conclusion of the address, and in pointing out the absolute impossibility of there being common ground with homœopaths, whose doctrines were either a system of medicine or were not. This expression of opinion, somewhat irregular under the circumstances, did not however detract from Dr. Bristowe's reception, which was extremely enthusiastic, for it was felt that he was merely expressing his own views, and had no desire to convert others to them.

The sections were duly constituted. Medicine: President, Dr. Long Fox; Vice-Presidents, Drs. Withers Moore and Bushell Anningson. Surgery: President, Mr. Martin Coates; Vice-Presidents, Mr. C. Macnamara and Dr. A. G. Davey. Obstetric Medicine: President, Sir E. B. Sinclair, M.D.; Vice-Presidents, Drs. Whitehead and Malins. The sections met in the afternoon. A discussion on Dilatation of the Stomach was opened by Dr. Wade in the first room; the Treatment of Hæmorrhoids by Mr. Coates in the second; and the Mechanical Treatment of Uterine Flexions and Displacements opened by Dr. Sinclair Coghill in the third. The reception room and museum are in the School of Art, and arrangements have been made for many garden parties and excursions. This evening there is to be a soirée in the Town Hall, and to-morrow the annual dinner of the Association is held.

HARVEY TERCENTENARY MEMORIAL AT FOLKESTONE.

ONE of the most interesting events of the past eventful week was the unveiling, by Professor Owen, of the Harvey Memorial Statue at Folkestone, on Saturday, the 6th inst. At the invitation of the Memorial Committee many members of the International Medical Congress attended, so that a large party of ladies and gentlemen left Charing-cross station by the special train kindly provided for the occasion by Sir Edward Watkin, the Chairman of the South Eastern Company. Amongst those present were Dr. Hans Hebra of Vienna, Professor Stokvis of Amsterdam, Dr. Chas. West, Mr. Erichsen, Dr. Paget, Dr. Broadbent, and others. The visitors were met at the Shorncliffe railway-station about half-past three o'clock by the Mayor of Folkestone and members of the Corporation, and thence the whole party drove to the Lees, upon the western portion of which the statue stands. Great interest and enthusiasm prevailed, and not only was the route gaily decorated with flags and arches, but a large concourse of people were assembled at the spot where the ceremony took place. The guests were gathered upon the platform at the base of the statue, but the words of the speakers who addressed the meeting were only audible to those in their immediate vicinity, owing to the fresh sea breeze that was blowing at the time. The proceedings commenced by Mr. George Eastes (to whose indefatigable exertions the successful promotion of the scheme founding a permanent memorial to Harvey in his native town is entirely due) reading a report of the Executive Committee reviewing the history of the conception and founding of the memorial, the selection of Mr. Bruce Joy as the sculptor, and of the Nestor of British physiologists, Richard Owen, as the unveiler of the statue. Professor Owen then unveiled the statue, which is in bronze and of colossal proportions. It is certainly an admirable work of art; Harvey stands with his right hand placed over his left breast, and a human heart in his left hand, with that earnest, thoughtful expression in his face which has been handed down to us in the painting at the College of Physicians. Professor Owen then read his address, which we hope will be published *in extenso*. In it he urged the youth of Folkestone to follow the example set by their famous townsman, and pointed out how different were the conditions of medical education at the present day as compared with Harvey's time; but the main burden of his address was the topic which is just now uppermost in the minds of British physiologists—viz., the subject of vivisection, and Professor Owen's utterances on the subject will be received with great attention. At the close of the address the Mayor and Dr. Bowles respectively welcomed their visitors to Folkestone, and a special dedicatory prayer was offered by Canon Jenkins.

The two or three hundred visitors then proceeded on foot to the Town Hall, where they were entertained by the Mayor and Corporation at a banquet. The time of the departure of the special train having been fixed at 8.15 P.M., the toasts were few and brief, including one, proposed by Professor Owen, and drunk in silence, "To the Memory of Harvey." The healths of Professor Owen, Sir Edward Watkin, Mr. Eastes, and "The Foreign Visitors," were also drunk with enthusiasm, and the company dispersed after a most enjoyable day, the ladies of the party having been thoughtfully entertained at the West-cliff Hotel, the size of the room in the Town Hall not allowing of their presence at the banquet.

THE LANCET.

LONDON: SATURDAY, AUGUST 13, 1881.

IT is not time yet to review the work of the Congress, although we live in such a busy world that quickly it will become a matter of the almost forgotten past. But it *is* time to state that there is and can be only one opinion as to the success of the meeting. The numbers attending have far exceeded any expectations; the work of the sections has been unremitting and really productive of good; while the foreign visitors have been welcomed with an outburst of the most generous hospitality that cannot have failed to impress and please them. Could we but trace the part each of the executive have taken we should probably find still greater difficulty in allotting to each man his due meed of praise. But there are two to whom the thanks of every member of the Congress are due in a most special manner. Sir JAMES PAGET has abundantly and repeatedly justified his election to the high office of President of the whole Congress. He has been most assiduous in his work for the success of the meeting, and this not alone just now, but quietly for many months past. He has also occupied the chair with rare grace, and from first to last has won only golden opinions. His short address of farewell was as eloquent as his earlier longer one. At no time has he been absent where most wanted; at no time has he failed to fill his high position with dignity, skill, and courtesy. And while we say this of the President, we cannot but add that no one more deserves the thanks of the Congress than the Hon. Secretary-General Mr. WM. MAC CORMAC. He has had a heavy burden to carry for many months past. His labours now are nearly at an end. The success of the meeting, the enthusiasm with which his name has been always greeted, and the universal gratification with the arrangements of the Congress, are, we trust, some recompense for his self-denying labours. Notwithstanding the severe pressure of the enormous number of members, much exceeding that expected, the arrangements have borne the strain, and have worked smoothly with the least amount of friction. For all this we have to thank Mr. MAC CORMAC and his able lieutenant, Mr. MAKINS. Whenever the Congress meets again, may it be as well officered as in its seventh session in London!

Dr. BILLINGS chose for the subject of his address "Our Medical Literature," and it was a matter of considerable speculation how he would treat it. Whether he would dwell upon the excellence of much that has passed out of sight and hardly read but by bookworms; whether he would remark on the change in style that has necessarily accompanied the advance of science; or whether possibly he might not be prepared to come forward with the statement that what deserves the name of medical literature has in the present day no real existence. But no one could have foreseen that out of the material at his disposal he would have compiled an address remarkable even among all those of the past week for its great ability, practical value, and wit. The large audience gathered to hear him was held charmed from beginning to end, both by his ever-recurring flashes of American humour and the striking nature of his facts and statistics. The enormous growth in numbers of medical writings during the last ten years, and the altered character of so many of them, were not new, but we believe he imparted considerable comfort when he was able to point out that signs are not wanting of the cessation of this increase in Europe and America. We commend his incisive remarks on the laboriousness and difficulty of "reference" to all authors. None could have been more opportune, for unless some system can be introduced and adopted with practical uniformity, one-half the world will soon be engaged in looking for the facts and opinions recorded by the other half. But most of all would we urge intending authors to ponder well Dr. BILLINGS' four golden rules before taking pen in hand. How large a number of our books would never see the light if only their writers had first of all tried to convince themselves that they had really something to say!

Professor VOLKMANN is so well known to be one of the greatest upholders of Listerism in Germany, if not indeed the most prominent disciple of the founder of that plan of treatment, that it was an open secret that any address from him on the progress of modern surgery would largely consist of a review of the progress and results of antiseptic surgery. And here indeed he had a task as easy as congenial. At home, if to statistics the surgeon has to refer, he cannot give a difference of more than a few ciphers per cent. in favour of any one plan of treating wounds. But among the hospitals of the Continent familiarly spoken of as "pest-houses" by surgeons connected with them, the results of any plan of treatment which successfully contends against the horrible results of dirt and wound contagion, are sure to stand out in bright colours upon the dark background. Professor VOLKMANN had no difficulty in sketching a picture that must have impressed even the most careless. Indeed, our admiration for the change effected is only equalled by our horror at the previous condition. It is abundantly clear, that whatever effect Mr. LISTER'S labours may have had upon English surgery, they have simply revolutionised, and that in the space of a few short years, the treatment of wounds abroad, and have at one leap brought it abreast, or almost so, of the best practice of our own country. In his review of the manner in which Listerism has enlarged the area of operative surgery, Professor VOLKMANN was treading on more doubtful ground; the new operative procedures he referred to are so new that it is difficult to appraise them at their true value; and to some eager seeker after truth, some of the so-called triumphs of antiseptic surgery are wanton displays of nature's powers of resistance and repair.

We know not to whom we are indebted for the alteration in the original programme which permitted M. PASTEUR to follow Professor VOLKMANN with a brief address on Virus Cultivation and Vaccination Experiments, the results of which had been already referred to in our columns. It is

much too soon to speak of the permanent results of the Congress, but yet we think we are not too bold in offering the opinion that this address is the most valuable of all those delivered, and that perhaps in history, the meeting will be famous, or most famous, for this production. M. PASTEUR enjoys the rare privilege of having seen that his life work has been of value to mankind at every step. He has not had to toil for long years fruitlessly before reaping his harvest. His results have revolutionised the theory of fermentation, have opened up new regions of pathology and therapeutics, and now, as if that were not enough, he has apparently made a discovery, or rather a series of discoveries, that promise to rank second to none in preventive medicine. The bare facts known to us now are of an importance hardly to be over-estimated; but the hopes they raise, the visions of further extension and application they call up, are overwhelming. Should it prove true of all septic and contagious diseases, as of splenic fever and chicken cholera, that in the laboratory a vaccine to protect from each can be prepared, we are on the threshold of a discovery which will so vastly increase the sway of man over the diseases before which he is now comparatively powerless, that our words, strong as they are, will not prove exaggerations. While there is all encouragement to study therapeutics, and develop that phase of scientific truth, how vastly greater are the results of successful endeavours in the region of preventive medicine!

A melancholy interest is necessarily connected with M. RAYNAUD'S address, which was so ably read by his intimate friend Dr. FÉRÉOL. All that could be done by one in his place was successfully accomplished. In his introduction he paid a graceful tribute to his friend, and briefly sketched his labours. The address itself is valuable as calling attention to the great causes of Scepticism among practising physicians—its pandering to idleness and vanity; the calls upon practitioners for help beyond what science enables them to give; dogmatism; and ignorance. The distinctions drawn between true and false Scepticism and criticism are good; and his caution lest a healthy criticism should be allowed to degenerate into scepticism is as necessary to be borne in mind now as at any time. Sceptics who delight to point to what is still uncertain in medicine, and almost refuse any credence to therapeutical results, are not unknown; and to them M. RAYNAUD'S address is an appeal to which they would do well to listen. The addresses at this Congress alone afford abundant answers to such objectors; for from such varied sources as Professors HUXLEY, VOLKMANN, RAYNAUD, and PASTEUR, they have abundant evidence of the advance of medicine in and towards certainty.

The entertainments to the Congress as a whole, or to select parties, have been so numerous and brilliant that they form an important feature in the meetings. There has certainly been no lack of them, while on all hands we hear of the most generous private hospitality. We are glad that our foreign friends have received a welcome of almost unequalled warmth and generosity, and, intangible as is such a result, we confess to entertaining a strong hope that friendships now formed may prove lasting. Among the many brilliant gatherings it is impossible not to refer to the dinner at the Mansion House, on August 4th. When we say that the cosmopolitan reputation of the Mansion House for hospitality was more than sustained, and that the Lord Mayor of London is in the eyes of all foreigners an officer whose power is so wide that he is practically supreme in his own city, everything that was needed to give éclat to the gathering was supplied. The other City entertainment—the soirée at the Guildhall, given by the Corporation—was very brilliant; it seemed as if the whole Congress was there, and on all sides there were loud expressions of pleasure at the efforts made to entertain the Congress, the sumptuousness of that particular soirée, and gratification at the association of the City with science. It is impossible to speak of the more private entertainments they were many, and daily, at times almost hourly. We do not look with any jealous eye upon these friendly gatherings at such times; time sufficient was reserved for the work of the sections, and doubtless it was in private or semi-private talks that information was most freely circulated and most good was done.

Early in the course of the arrangements made for the recent meeting the Executive Committee decided to limit the invitations to be present to men only. It has been reported by some of our lay contemporaries that this decision was not that of the majority of the Committee, who "were over-ruled by Sir WILLIAM JENNER, who declared that he was empowered to remove the name of the QUEEN as patron of the Congress if lady doctors were admitted to the medical meetings." We have the highest authority for stating that this report is entirely and totally without foundation, that no such statement was ever made by Sir WILLIAM JENNER, and that the decision arrived at was the deliberate conviction of the large majority of the Committee. We regret to see that this wise resolve has been protested against "by forty-three duly qualified medical women." It is well to bear in mind that the Congress is a voluntary assemblage of medical men for a certain purpose, and that those who are not asked to join suffer no infringement of their rights.

THE discussions on the relation of the micro-organisms to disease which were held in the Pathological Section of the International Congress on Friday and Saturday were of considerable interest. The subject for Friday was "The Relation of Minute Organisms to Unhealthy Processes arising in Wounds," and that for Saturday was "Their Relation to Certain Specific Diseases." The debate on the first subject was opened by Mr. LISTER, who feared that the relation of micro-organisms to diseased processes, more especially to inflammations, was being exaggerated. He pointed out that many inflammations, more especially chronic inflammations, were caused by the nervous system, and could not in any way be attributed to the presence of micro-organisms, and the success of counter-irritation in the treatment of inflammations demonstrated the same thing. He was inclined to accept Mr. CHEYNE'S view, that in many cases inflammations arose independently of organisms, which reached the products of inflammation as a result of the disturbance of the constitution which followed. As Dr. BASTIAN pointed out, that two preliminary questions have

to be settled: first, the specificity or otherwise of the various forms of organisms formed in diseased processes; and, second, the possibility of the spontaneous origin of organisms in unhealthy tissues. The existence of specific forms of organisms is a point which has been much discussed, and during the debate on Saturday Dr. FOKKER supported NAEGELI'S view, that there is only one form, and that the numerous varieties of bacteria are modifications of this one form under different circumstances. The facts, however, which are brought forward in support of this view are not very satisfactory, and it has, on the contrary, been found that where the cultivations are pure no such interchange can be traced. The recent experiments of Dr. KOCH, which were exhibited to the leading men interested in this matter, were apparently perfectly conclusive on this point. He showed that, by growing organisms on a firm substance, such as gelatine, where they could not mix with each other, the numerous varieties could be separated, and kept separate from each other, and that they never underwent any change in form or transformation into each other. He has further made out the important fact that, by studying their mode of growth and their physiological action as a whole, differences could be made out between forms which microscopically were practically indistinguishable from each other, which differences were sufficient to justify one in regarding them as distinct species. The same facts have been made out by him as to pathogenic bacteria. The forms which were associated with a particular disease were always found in animals dying after inoculation from those affected by it; the same forms could be grown in his gelatine substances and thence produce the same disease, the organism retaining its form and properties throughout. The theory of spontaneous generation, which had almost become a thing of the past, was again revived by Dr. BASTIAN and M. BÉCHAMP, but no new argument of importance was brought forward. Dr. BASTIAN had found that bacteria developed in a piece of brain removed from the body and dropped into chromic acid; but as there are so many possibilities of contamination in doing so, and as the precautions taken were not detailed, the experiment does not seem to be very striking. It is also not unlikely that, in specimens of brain substance acted on by chromic acid and not prepared in any special manner, bodies were mistaken for organisms which were not really so. And then, when we take into consideration the numerous facts which are now known with regard to the absence of putrefaction in organs and tissues in the living body which are deprived of vitality, and also the experiments in which portions of various tissues have been removed from the body of an animal just killed and preserved in cultivating fluids for a long time without any development of organisms in them, there seems to be no evidence of any importance left to support Dr. BASTIAN'S theories of Heterogenesis and Archebiosis.

It being, then, the case that there are numerous definite species of micro-organisms, and that organisms never develop *de novo*, some explanation of their presence in diseased states must be sought for. That they are present in the blood and tissues in numerous diseases, more especially infective diseases, has now been amply demonstrated, and in many cases they have been shown to be the cause. Thus, in anthrax there can now be no doubt that the only agent necessary, and indeed able to produce the disease, is the Bacillus anthracis. Similar convincing evidence has been brought forward by M. PASTEUR with regard to the disease which he has termed "choléra des poules." The experiments which Dr. KOCH showed, illustrated and strengthened the statements in his work, "Ueber die Wund-infectionskrankheiten." He showed specimens of septicæmia in mice, caused by minute bacilli; of septicæmia in pigeons, rabbits, mice, &c., caused by organisms without doubt identical with those in PASTEUR'S "choléra des poules," and in anthrax in guinea-pigs. In the blood of the animals which had died of these diseases special forms of organisms were always found; these organisms could be cultivated outside the body, and when reintroduced they reproduced the same disease with the same fatal result, and the presence of the same form of micro-organism in the body; and these diseases never occurred without the presence in the blood of the form of organism peculiar to them. There could, therefore, be no doubt that these organisms were the cause of the disease. The probabilities are now great that all the specific fevers are due to the entrance of micro-organisms into the body, indeed of some, more especially relapsing fever, this seems to be certain. Photographs and specimens were also exhibited by Dr. KOCH, showing the same thing with regard to erysipelas.

No facts were mentioned as to the relation of micro-organisms to unhealthy processes in wounds, but Mr. LISTER referred to their relations to inflammations, especially to acute abscesses. As is now well known, Dr. OGSTON has demonstrated that micrococci are present in all acute abscesses when opened, and he has for various reasons concluded that they are the cause of these abscesses; indeed, he has gone further and said that acute suppuration cannot occur without the presence of micro-organisms. These views have not been accepted in full by Mr. LISTER, who inclines to Mr. CHEYNE'S view, that while many acute abscesses may no doubt be caused by micrococci, yet, in some cases, they must be regarded as accidentally present as the result of some state of lowered vitality of the general system. Mr. CHEYNE supported these views by a number of facts, amongst others by reference to Dr. BURDON SANDERSON'S experiments with the injection of ammonia; by reference to experiments of his own which tended to show that organisms are not so rapidly destroyed in the body when the organs and tissues are not in a state of absolute health, that indeed they may be found there; and by showing that when micrococci are introduced into the circulation of an animal, and an effusion of blood into the tissues caused in various places, no abscesses result. The whole subject is as yet in its infancy; but the result of the debates has been to show that there are many conscientious workers who are rapidly laying a sound foundation on which further researches, which must ultimately result in the greatest good to mankind, and indeed to the whole animal world, can be based. There is no more interesting or promising field of study at the present day.

IT is needless to say that Professor HUXLEY'S Address on the "Connexion of the Biological Sciences with Medicine" was masterly. All the Professor writes or says is masterly;

and in the presence of an audience like that assembled in St. James's Hall on Tuesday the master-mind was necessarily in [full action. The address was essentially a brief recital of the growth of scientific medicine, which, as Professor HUXLEY conclusively showed, has been not less irregular in its progress than slow in its advance. Perhaps the most notable of his observations on the story of the development of our science was that in which he relegated the illustrious HARVEY to his proper place as the last of the ancients rather than the first of the moderns. This is a point of considerable interest, and we think it is one which should be taken into very serious discussion when next the time arrives to pay our annual tribute to the renowned "Discoverer of the Circulation." As we have often laboured to show, HARVEY did not, as a matter of history, *discover* the circulation. He rather made a remarkable application of the logical result of investigations accomplished by previous workers, and, in so doing, not only demonstrated as facts what they had conjectured, but grouped new facts around the old, and thus gave firmness and stability to an edifice which his own genius, building on the foundation laid by his predecessors, had triumphantly erected. HARVEY should be known and remembered as the man who first *demonstrated* the circulation, rather than as its discoverer; and it is no depreciation of the value of his enterprise to affirm, as Professor HUXLEY affirmed before the International Medical Congress, that HARVEY was the last of the ancients, in the sense of summing up the work they and he had together accomplished, and not the first of the moderns, in the sense of making a new start in medical discovery.

Professor HUXLEY dates the era of modern medicine from the time of DESCARTES. This is probably a just ascription of praise, and a fair recognition of merit. The view of life that philosopher propounded supplied the ground for a *first* step in the science of biology, and therefore of scientific medicine, by recognising that the functions of the organism as a whole must be the results of the operation of forces inherent in the organs by which those functions are performed. The hypothesis of a central or indwelling life is not only unnecessary to explain the phenomena of animal existence, but it is incompatible with scientific teaching. Science regards man as an animal, and while it is no part of the duty of science to deny the unseen, it is not desirable to confound things which are wholly distinct and essentially different. Those who believe in the existence of a soul do not assert that man would cease to live an animal life if he were soulless. On the contrary, it is their contention that man is *more than* animal, because he possesses a soul. He is an animal, and as such he lives an animal life; but, they say, he *also* has an indwelling spirit which does not deprive him of the qualities and properties of an animal living by the vitality of his organism, but which enriches him with higher gifts and nobler hopes and responsibilities than can be participated in by any mere animal. The distinction is important. Before the time of DESCARTES it was the fashion to think and speak of the body as vitalised by an indwelling spirit of life. This the French philosopher denied, and from the date of his refutation of that scientific heresy science has begun to make new strides.

The point we do not think Professor HUXLEY made as clear as he might have made it is the difference between what used to be called somatic and interstitial life—that is, the life of the animal as a whole and the life of its parts. Probably Professor HUXLEY, in common with a large class of scientists, has finally abandoned this theory of the vital constitution. If so, of course he could not be expected to advert to the subject, but it is, nevertheless, one of great practical interest. Why does an animal die *suddenly*, without apparent cause for the extinction of life? "Sudden death" is one of the seemingly inscrutable mysteries of natural phenomena. It is easy to say, "Some vital organ has suddenly ceased to act." This statement does not elucidate the question, because it will at once occur to the inquirer to ask why it ceased, under conditions which, so far as the pathologist can discover, have existed before and not killed their subject. The physiology and pathology of the nervous system do not offer any sufficient explanation of sudden death in many of its varieties; and science is at fault in the presence of this mystery. It would, therefore, have been interesting to hear what Professor HUXLEY, as an exponent of the connexion between the biological sciences and medicine, had to say on the matter. The death of organic particles of the body may proceed slowly until a large part of it is destroyed. This "interstitial," or molecular, death may even invade the so-called vital organs and proceed until the extent of its ravages has become almost coterminous with the area of vitality itself. On the other hand, an animal may instantly cease to live without any apparently sufficient or necessary cause for its death.

The critical remarks of Professor HUXLEY on the empirical character of medicine may not give universal satisfaction; nevertheless they are true. We have not yet reached the point at which the several branches of science, comprising the architectonic science of medicine, shall converge, and naturally focus. When that point in progress is gained we shall be able to take a new departure, and science and practice will, perhaps, as Professor HUXLEY fondly anticipates, run on the same lines. Meanwhile the enterprise of to-day is to make biology the basis of medicine. To this enterprise Professor HUXLEY has himself lent a zealous and powerful hand; and, as Sir JAMES PAGET observed on Tuesday, there is no man by whom we would rather be criticised, even frankly, than Professor HUXLEY.

IT is pleasant to us to note the growth of the Metropolitan Hospital Sunday Fund. Without withholding from Sir SYDNEY WATERLOW the credit assigned to him by the Lord Mayor of being the first Lord Mayor to put the idea of a Metropolitan Hospital Sunday Fund into action, and to give to it the great advantage of his official and personal help, we cannot forget that we ourselves were the first to suggest the institution, and to urge its adoption from year to year, as a reference to our pages will show. Not only so, at various times, and notably in 1880, we have taken special pains to bring before the churches and the public generally the enormous claims of our hospitals, with all their faults and fallibility, to a generous and ample support. Last year we were careful before the collection Sunday to send to every clergyman in London, whatever his denomination, a special article setting forth the chief points of the subject. It will be remembered that this article, or the

chief parts of it, were read in many churches, and that the collection which followed was well on to £2000 in advance of that of the previous year. This year we have to note a further increase, and the largest collection taken since the establishment of the Fund. The sum, exclusive of the balance from last year, and of further sums yet to be received, is £31,000. This result, though still inadequate by £20,000 to the demands of the case, is a grand one. As we have said, it has special satisfaction for us, and will stimulate us to further effort, until the care and impecuniosity of Hospital Committees are abated, and the sick and the convalescent can be treated with a liberality becoming their case and that of those who have health and means.

The meeting of the Council at the Mansion House on Friday last naturally found the Council much gratified. It is to the credit of the Distribution Committee, and of the paid officers of the Fund, that in about six weeks from the day of collection everything was ready for distribution, and that the working expenses of the Fund are remarkably small. It is possible that this quickness of distribution may account in some degree for several of those inequalities of award which excite the surprise of those who try to use the invaluable data which are supplied by the participating charities year by year to the Council. Dr. GLOVER called attention to some interesting and curious facts brought out in these data. The principal of these was the much greater cost of special than of general hospitals. He showed that if the average gross expenditure of hospitals were divided by the number of in-patients, the cost of out-patients being slight, it would be found that, whereas in the general hospitals the cost would range roughly from £6 to £10, in the lying-in hospitals it went up to an average of £15 or more, and that the Hospital for Consumption, Brompton, spent £31 14*s.* 3*d.*, and the Cancer Hospital £34 4*s.* 5*d.* per in-patient. Sir SYDNEY WATERLOW sought to explain this difference by the longer duration of special cases, and their more extensive wants. It is certainly doubtful whether patients suffering from consumption or cancer will eat more than others. But Dr. GLOVER sufficiently answered Sir SYDNEY'S argument by referring to the fact that two other consumption hospitals in London showed an average cost of £11 0*s.* 10*d.*, and £15 17*s.* 5*d.* per in-patient. It is not quite intelligible under these circumstances, as Dr. GLOVER pointed out, why a hospital like St. Mary's, with 172 *occupied* beds, 2164 in-patients, 17,000 out-patients, a gross expenditure of £16,167, or £7 9*s.* 5*d.* per in-patient, should receive a less grant (£1012 12*s.* 9*d.*) than the Brompton Hospital for Consumption (£1068 15*s.*), with 173 occupied beds, 847 in-patients, 11,975 out-patients, and a gross expenditure of £26,882, or £31 14*s.* 3*d.* per in-patient. The details are very interesting, and suggest difficulties which are not satisfactorily removed by Sir SYDNEY, whose virtues of industry and good-temper have brought the Fund under great obligations, and who has but one fault, an air of infallibility in regard to all criticism of details of distribution.

One other point of great importance at the meeting of Friday last was mooted by the Bishop of LONDON—the defect in the ambulance accommodation in our hospitals. We must revert to this and some other matters before finally dismissing the consideration of the noble collection of this year.

IF the reports of the public press are to be trusted, nothing could well have been less satisfactory in its results than the deputation which had an interview with the President of the Local Government Board on the 4th inst., respecting the tenure of appointments of medical officers of health. Mr. DODSON admitted the hardships to which the medical officer was subjected by the uncertainty which attached to the duration of his appointment, and the grave injury which might arise and in some instances had arisen therefrom; but he exhibited no consciousness of the undoubted fact that the difficulties which he stated stood chiefly in the way of his own Department making officership-of-health appointments permanent were difficulties created originally, and are believed to be largely maintained, by his own Board. It is obvious that the medical profession, in its relations to public health administration, is being made the scapegoat of that policy of public health administration inaugurated by Mr. STANSFELD, and persistently followed by successive Presidents of the Local Government Board, of which the uncertain tenure of their appointments by medical officers of health is one of the results. From 1872 to the present time the Local Government Board has arbitrarily determined that before its own existence there was no knowledge of medical officers of health, their requirements and duties; and that since the institution of the Board no useful experience has been gained respecting those duties and requirements. It has dealt with the question as if it were an abstract one—a subject, as Tristram Shandy would say, not concerned with fact but with dialectic. In this dialectic every man's opinion was held to be better than that of any other man, with the consequence, as we now learn from Mr. DODSON, of such indescribable confusion that the Local Government Board itself sees no escape from the dilemma but by the help of county boards—that is to say, by the help of legislation of which we have, in respect to public health matters, neither knowledge nor experience. Meanwhile medical officers of health must go to the wall, or, if they will consider the feelings of the Local Government Board, fly off into outer space.

Annotations.

"Ne quid nimis."

HOSPITAL MISTAKES.

WE had last week to notice a painful case of wrong diagnosis at the Middlesex Hospital, followed by the removal of the patient to a workhouse, and his death there. We have this week to notice a complaint of another inadequate estimate of disease, followed by the death of the patient, a skindresser, John Cooper, who got burnt at his work, in Bermondsey, and was taken to Guy's Hospital. The case was the subject of an inquest, before Dr. Danford Thomas, on Thursday, August 4th, which was adjourned to Thursday, the 11th. The burns were not very deep, and affected the arms. The accident occurred on Thursday, 7th of July. His burns were dressed, and he was told to return the next day, Friday. On this occasion he was again dressed, and told to return again on the Monday—an interval of three days. With this exception he seems to have gone daily to the hospital. The weather was very warm, and the man lived in the Essex-road, Islington, about three miles from the hospital. On the evening

of the 20th of July, the deceased was ill, complained of his left ankle, and, feeling quite unable to take the journey again, Mr. Waller was sent for. On the 23rd of July Dr. Glover, at the instance of the employer, saw the patient in consultation with Mr. Waller. By this time pyæmia was established, pyrexia, severe pain, and swelling in the left ankle, dry tongue, slight wandering, &c.

The burns, which at Mr. Waller's first visit were found very foul, had now, under carbolised dressing, become more healthy and less offensive. But the symptoms of blood-poisoning grew worse. The right leg became affected, and the patient died on the 29th. The widow of the deceased at the inquest said her husband was seen only twice by the house-surgeon; on other occasions he was dressed by students or a nurse. The case seems to make an addition to several other instances of error of judgment at this hospital. But we withhold further comment till we learn the nature of the explanations to be given by the hospital authorities. It is, however, pretty clear to us already that accident wards and out-patient wards at our hospitals are places where there is often insufficient guarantee of care and skill, and that if some reforms are not effected in these departments, men who have sustained accidents will be chary of going to them, and public confidence will be seriously shaken.

ARE "MEDICAL OPINIONS" GENERALLY WRONG, AND DO THEY DEPRESS?

A LAY contemporary (the *Daily Telegraph*) in what may have been intended as a complimentary, and was undoubtedly designed to be a humorous, article, *à propos* the International Medical Congress, recently brought two railing accusations against the profession, which can scarcely be allowed to pass without protest. First it was alleged that the opinions pronounced by physicians and surgeons—the former particularly—are commonly proved to be wrong. Our lay critic affirmed that there are few families which do not afford instances of this class of error, and that the effect is to weaken the respect which should naturally accrue to a medical opinion. Second, it was stated—and this is, perhaps, the most serious defamation of the two—that the general result of seeking medical advice is to depress the patient and thereby diminish his chances of recovery, because the doctors consulted almost invariably pronounce a judgment calculated to fill the remainder of the real, or supposed, sufferer's life with gloom. This grave charge is made the more specific by the assertion that the professional men who give these lugubrious forecasts do not themselves attach that importance to their prognostications which they receive from the patient and his friends. We should like to dispose of aspersions so mischievous as these are with the simple denial they deserve; but it is necessary, in the interests of health and happiness, to explain the facts and considerations which have been, perhaps unwittingly, misconstrued. When a patient who is apprehensive, or whose friends have a strong suspicion, of the existence of organic disease is brought to a medical practitioner for an "opinion," there is *generally* solid ground for the misgiving which has been aroused. If this were not the fact, the average human mind would be a more morbidly sensitive thing than it is—which is scarcely conceivable! Men and women are naturally prone to take exaggerated views of their complaints, but if they commonly imagined diseases which had *no* existence the prevailing demoralisation would be great indeed. Granted, then, that there generally is some foundation for the fear which drives patient or his friends to a physician, how grave would be the responsibility of the professional adviser if he denied the existence of the solid ground on which the superstructure of dread is raised. The truth is, physicians are asked for an "opinion" rather than for treatment, and they are bound in common honesty to state the facts of the case. There usually is some cause for apprehension, and the physician admits the fact. He also places before the patient or his friends the probabilities and possible issue. He does not affirm that the disease will run its natural course; he only indicates the issue *if* it does progress. He is asked for a prognosis of the disease rather than of the case. In any event that is what he gives; and if the patient or his friend err in supposing that the individual in question is doomed, that is a misapplication of the statements made. If a physician were directly required to give a prognosis of the case as distinguished from the disease, he would, in the majority of instances, decline to give it. Happily, disease in the concrete is not nearly as mortal as disease in the abstract. Of the total number of persons suffering from what are called "mortal diseases," probably not one-third or one-quarter die of those maladies. It is obvious, therefore, that if prognoses of diseases are applied to cases, and regarded as forecasts of the issue in individual instances, they must be often inaccurate. The assertion that physicians do not themselves attach great importance to the "opinions" they express, is either a gross misapprehension or a calumny. It is because those who consult professional men misapply and misconstrue their statements, that these are exaggerated and made to carry a meaning they were not intended to convey. This is a grievous source of annoyance to medical practitioners. The things they are alleged to have said are often so obviously and ridiculously absurd that it is marvellous how sensible persons can repeat them. We often hear of statements alleged to be made by members of the profession which could not possibly have been made by the merest tyro among students. It is a scandal that these "opinions" should be attributed to the profession. "Medical opinions" are *not* generally wrong, neither do they tend to depress, except an erroneous construction be put upon them, or they are misrepresented and misapplied.

LICENSED LODGINGS AT OXFORD.

IT is with a feeling of satisfaction that we learn the University authorities at Oxford have employed Mr. Griffith, C.E., to inspect the lodging-houses tenanted by the undergraduates, with a view to their sanitary improvement, and also have required those who are supplied with well water to have it examined by the University analyst. This is a step we have long urged upon the authorities at both Universities, and if the recommendations now drawn up are thoroughly carried into effect, and a system of frequent and efficient inspection instituted to see that the sanitary arrangements are maintained in good working order, it will do much to ensure the health and even lives of the undergraduates. The step taken by the University, however, has raised a strong feeling of indignation among the townspeople, and the Local Sanitary Board have issued a notice informing the delegates of the University that any alterations affecting the sanitary arrangements of the dwelling-houses in the district should be submitted to the Board for their approval, since the Local Board is the only legal sanitary authority in Oxford. We can quite understand that the city authorities, having neglected for so many years to enforce the necessary sanitary improvements in the condition of the houses in question, feel the rebuke which the present action of the University brings on them. But we fancy their objection will go for very little. The University authorities require that certain definite sanitary requirements be carried out in all lodgings let to undergraduates; if the owners do not choose to conform to the University regulations in this respect, then no licence will be granted for them to receive students. The matter is quite optional, and the city authorities have

no power to prevent any person from effecting sanitary improvement on his own premises. Indeed, by this time the city authorities at Oxford must feel that it is hard to kick against the pricks of public opinion. It was public opinion that forced them to adopt their present system of sewerage. It was public opinion, after a long struggle, which made them abandon their old reservoir at Hinckesey, which received the soakage from the cesspools of that delightful suburb, and seek a purer and safer water supply; and now the lodgings of the undergraduates are to be made healthy in spite of them. If, as they admit in their present notice, the sanitary condition of the lodging houses lies within their province, they ought to feel ashamed of their past neglect; but if, as is most probably the case, they had no real power to enforce the requisite attention to sanitary detail in these places, their present attitude of obstruction is simply ridiculous.

HEALTH PROGRESS IN ENGLAND.

THE Registrar-General, in his Quarterly Return just issued, is able to report that the recent marked decline in the English death-rate was fully maintained during the second or June quarter of this year. It was shown in the Preliminary Census Report that the decline in the death-rate during the decade 1871–80 implied the survival of 299,385 persons who would have died if the mean death-rate in the preceding ten years had been maintained. It was not there shown, but it was none the less true, that nearly the whole of this life-saving occurred during the latter half of the recent decade. The new decade has, moreover, opened still more auspiciously, as the death-rate in the first half of this year did not exceed 20·1 per 1000, which was 2·2 below the mean rate for the corresponding period of the ten previous years. This decline in the death-rate implies a further saving of 28,623 lives during the six months, that would have been lost if the reduced death-rate of the last decade had been maintained. The rate of mortality in the first half of this year was considerably lower than that recorded in the corresponding period of any year since civil registration came into operation in 1837. A very large proportion of this life-saving is due to the marked decline of zymotic fatality. Infant mortality has decreased, but its excess still offers a fruitful field for further social and sanitary enterprise; this is especially noticeable at the present time, when the infants among our urban populations are suffering from severe summer diarrhœa fatality.

ANOTHER "NEW DANGER."

THE public have long been familiar with the fact that effervescent beverages corked tightly under strong pressure are liable to burst if the bottles employed are not of the best quality. The old fashioned ginger-beer bottles of the roughest and toughest ware was the first homage paid to this idea. Glass bottles were not, as a matter of fact, used for the supply of these drinks until remembrable times. In the *old* days of Guinness's stout a considerable proportion of the glass bottles burst. This being recognised, a better class of bottle was introduced, and of late years the "accidental" destruction of three or four out of a dozen is not a common occurrence. The so-called "explosions" which once happened periodically in quiet houses, when "stout" was placed in a cupboard or warm apartment, are, happily, forgotten. The aerated waters were not then so numerous, or nearly so commonly consumed, as they now are. Soda-water, lemonade, or ginger-beer were almost the only very familiar forms of the bottled effervescent. Perhaps there has been some carelessness of late in the selection of bottles; it may be simply that the total quantity supplied to the public is so great as to necessitate a seemingly frequent occurrence of "accident" without any actual increase of the percentage of risk. Be that as it may, we have certainly heard of cases of bottle-bursting somewhat frequently during the last year, and in some of the casualties serious injuries have been inflicted. It is fair to say that the majority have been the direct effects of carelessness; either the bottle has been exposed to a comparatively high temperature, or it has been clumsily handled. If one of these bottles is first placed in ice and then suddenly brought into a warm room, it is, of course, likely to burst, the expansion of the contained air being rapid and gaining momentum by the start from an immediately previous very low temperature. It is also evident that if the cork of a bottle is not drawn quickly after it is taken into a warm hand there is danger. The proper course, for those who can accomplish the feat, is to hold the cork firmly and allow a little of the fixed air to escape slowly before the stopper is wholly withdrawn. We have heard of serious injuries being inflicted to the hand and the eyes because this precaution was not taken. It is, however, possible that the bottlers of these aerated waters are not sufficiently careful in selecting the bottles they use. Perhaps there has been an effort to secure cheaper glass. This is alleged, and it is said that a bottle will now break up into many pieces. The matter is certainly one that should be looked into. It would be intolerable if our table-drinks should become engines of destruction. Another suggestion we would throw out is that possibly it is unwise to use the same bottles many times, as is the practice with some manufacturers.

THE SENSE OF HEARING IN RAILWAY OFFICIALS.

ATTENTION has been lately called in Pflüger's *Archiv* to the fact that under certain conditions the hearing power of a healthy ear may be so fatigued after a time by a particular note that for a brief space the auditory nerve of one ear is incapable of appreciating the sound, whilst the opposite ear, which has not been subjected to the same excitation, will respond in the accustomed manner to the stimulus. Recent experiments by Herr Urbantt-chitsch have demonstrated this phenomenon. The well-known example of boiler-maker's deafness is another instance of how the constant tension of the tensor tympani muscle, and the influence of loud and continuous sonorous vibrations on the auditory nerve, will damage the hearing power as effectually, though much more slowly, as a violent and unexpected explosion which takes place close to the ear. It is beginning to be understood that the hearing power of individuals who are supposed to hear normally may by carefully conducted experiments be found to vary very considerably. Thus, in our columns in 1877, Mr. Dalby drew attention to the fact that "careful experiment will show that a large number of persons in advanced life are incapable of hearing very high notes—notes which correspond, for example, in the frequency of their vibrations to the call of a partridge, or the sound from a cricket. This," he adds, "may be readily demonstrated by experiments with one of the whistles constructed on the plan devised by Mr. Francis Galton." In the presidential address of the Section on Diseases of the Ear at the International Medical Congress, "the loss of certain ranges of notes, whilst other sounds are normally heard," was spoken of, not as a condition necessarily of disease, but one deserving the attention of aural surgeons. All this has a very distinct practical bearing on the ordinary affairs of life, and, as Dr. Turnbull of Pennsylvania has recently pointed out, it may readily be understood what serious consequences this abnormal hearing might induce if such abnormality should happen to exist in the person of a railway official whose duty it was to act immediately on hearing the whistle from an engine, but whose ear was either incapable of at once appreciating the sound, or did so indifferently well. It would seem almost

necessary that railway officials should be subjected to a test of hearing as well as of sight before they are taken into an employment where it is required that the one sense at times should be in as perfect a condition as the other.

AN HYSTERICAL SPINE (?)

AT the centenary festival dinner of the Massachusetts Medical Society, held at Boston on June 8th, the following admirably penned letter from Dr. Oliver Wendell Holmes was read by the Rev. Geo. E. Ellis, who at the close of his speech made these remarks:—

"On the church records of the revered old Indian apostle and pastor at Roxbury, John Eliot, I find this entry, under date of 1632: 'Mary Chase, the wife of William Chase, had a paralitik humor, wh. fell into her backbone, so that she could not stir her body but as she was lifted, and filled her with great torture, & caused her back to get out of joynt and bunch out from ye beginning to the end; of wh. infirmity she lay four years & a half, and a great part of the time a sad spectakle of misery. But it pleased God to raise her again, & she bore children after it.'

"I have submitted this case professionally to Dr. Holmes. As your proclivities will lead you to prefer the doctor's account of it to the apostle's, I will read it to you as the close of my speech.

"296, Beacon-street, June 3rd, 1881.

"MY DEAR DR. ELLIS,—A consultation without seeing the patient is like a murder trial without the *corpus delicti* being in evidence. You remember the story of Mr. Jeremiah Mason, and the witness who had had a vision, in which the angel Gabriel informed him of some important facts—'Subpœna the angel Gabriel.' So I should say, Carry us to the bedside of Mary Chase; but she has been under green bedclothes so long that I am afraid she would be hard to wake up.

"We must guess as well as we can under the circumstances. The question is, whether she had angular curvature, lateral curvature, or no curvature at all. If the first, angular curvature, you must consult such authorities as Bryant, Druitt, and the rest. If you are not satisfied with these modern writers, all I have to say is, as I said before, when asked whom to consult in such cases, Go to *Pott*, to Percival Pott, the famous surgeon of the last century, from whom this affection has received the name by which it is still well known of 'Pott's disease,' for if a doctor has the luck to find out a new malady it is tied to his name like a tin-kettle to a dog's tail, and he goes clattering down the highway of fame to posterity with his æolian attachment following at his heels.

"As for lateral curvature, if that had existed, it seems as if the apostle Eliot would have said, she bulged sideways, or something like that, instead of saying the backbone bunched out from beginning to end. Besides, I doubt if lateral curvature is apt to cause paralysis. Crooked backs are everywhere, as tailors and dressmakers know, and nobody expects to be palsied because one shoulder is higher than the other—as Alexander the Great's was, and Alexander Pope's also.

"I doubt whether Mary Chase had any real curvature at all. Her case looks to me like one of those *mimoses*, as Marshall Hall called certain forms of hysteria which imitate different diseases, among the rest paralysis. The body of an hysteric patient will take on the look of all sorts of more serious affections. As for mental and moral manifestations, an hysteric girl will lie so that Sapphira would blush for her, and she could give lessons to a professional pickpocket in the art of stealing. Hysteria might well be described as possession—possession by seven devils, except that this number is quite insufficient to account for all the pranks played by the subjects of this extraordinary malady.

"I do not want to say anything against Mary Chase, but I suspect that, getting nervous and tired and hysteric, she got into bed, which she found rather agreeable after too much housework, and perhaps too much going to meeting, liked it better and better, curled herself up into a bunch, which made her look as if her back was really distorted, found she was cosseted and posseted, and prayed over, and made much of, and so lay quiet until a false paralysis caught hold of her legs, and held her there. If some one had 'hollered' Fire! it is not unlikely that she would have jumped out of bed, as many other such paralytics have done under such circumstances. She could have moved, probably enough, if anyone could have made her believe that she had the power of doing it. *Possumus quia posse videmur.* She had played, *possum* so long that at last it became *non possum*.

"Yours very truly,

"O. W. HOLMES, M.D."

The above is taken from the *Boston Medical and Surgical Journal* for June 23rd, which contains the full text of the speeches, all of high order, that were delivered on this occasion, including also a poem by Dr. O. Wendell Holmes, contrasting the life-work of the medical man with that of the priest and lawyer—a poem so full of truth and pathos, mingled with humour, that we regret space does not allow of its reproduction in these columns.

PRESIDENT GARFIELD.

PRESIDENT GARFIELD'S condition during the past week has again been such as to cause anxiety to his surgical advisers. His temperature and pulse rose, and there were signs of bagging of pus about the wound. On Monday another counter-opening was made, and we learn that it has as yet been successful in giving free exit to the pus. The fever has subsided, but the pulse is still frequent, and shows signs of debility. Although for the present the more serious symptoms have again abated, yet it is to be feared that the distinguished patient has by no means weathered the storm. At his age the continued discharge of pus is not a trivial matter in itself, and until it has ceased entirely the danger of more serious complications cannot be considered to have passed away.

THE INTERNATIONAL MEDICAL AND SANITARY EXHIBITION.

THIS Exhibition, which was opened on July 16th by Earl Spencer, will finally close on Saturday, August 13th. The amount of public interest which it has evoked has been very considerable indeed, particularly among the professional classes connected with medicine, architecture, and sanitary engineering. A demonstration, illustrating first aid to the injured, will be given at the Exhibition Buildings by pupils of the St. John Ambulance Association, including soldiers, volunteers, police, civilians, and nurses, on Saturday, August 13th, commencing at 3.30 P.M.

CHOLERA IN INDIA.

WE are glad to find that cholera in Meean Meer has nearly subsided with the commencement of the rainy season. The mortality has been high, although the total number of cases has not been very great. The troops at Meean Meer were still in camp when the last report reached us. A few sporadic cases are reported from Dinapore, Meerut, and Umballa. At Bombay ten cases having occurred in the 17th Native Infantry, the regiment has been moved into camp.

AN inquest held at Derby a few days ago on the body of the child of a bargeman affords another proof of the need of some legislation of the kind which Mr. George Smith has been so persistently advocating. The mother stated that her husband, herself, the deceased and three other children slept in the cabin, which a juryman said was only five feet square. Mr. G. Rice, surgeon, gave it as his opinion that suffocation was the cause of death.

MR. W. A. FORBES, B.A. Cantab., has been appointed Lecturer on Comparative Anatomy at Charing-cross Hospital, in the vacancy created by the resignation of Mr. J. F. Blake.

THE following resolutions have been adopted by the American delegates to the International Medical Congress: "Resolved, That we highly appreciate the privilege we have enjoyed of attending this Congress, which has been in every sense a great success. That we offer our thanks to the officers of the Congress for the manner in which they have organised and conducted its meetings, and also to the corporations, societies, and individuals of whose unbounded hospitalities we have had such ample experience; and that we shall always preserve the most pleasant and grateful memories of the uniform courtesy and kindness which we have received, and which will strengthen the ties of friendship which exist between the United States and the mother country.—Montrose A. Pallen, chairman; Henry O. Marcy, secretary; Austin Flint, president of committee; Joseph C. Hutchison, D. W. Yandell, Robert Battey, Moses Gunn, Beverley Cole, Henry J. Bigelow, committee."

THE Scheme of the Royal University of Ireland as proposed by the Senate, if carried out, would have required an outlay of some 40,000*l.* per annum, and the pecuniary rewards were so lavish, and the fellowships so numerous, that considerable doubt was entertained as to the willingness of the Government to endow it in the way proposed. It has now been stated that the Government will not allow the annual expenses to exceed 20,000*l.* In consequence of this diminished income, it is understood that certain changes have been acquiesced in by the Senate, and that the new Scheme will consist of three heads. First, the staff of the University with travelling expenses of the Senate and Standing Committee and salary of officers at an annual outlay of 4000*l.*; second, a sum of 8000*l.* for examiners; and third, the remainder, or 8000*l.*, for scholarships and other prizes.

THE forty-seventh session of the Calcutta Medical College was opened on June 15th. The number of students in the medical classes at the commencement of the last session was 220, and at its close 123. The new entries and readmissions amounted to 67. Ten students had obtained a university degree and 27 apprentices had passed their final examination and joined their regiments. These figures, however, compare unfavourably with those exhibited in former years, owing (in the opinion of a writer in the *Indian Medical Gazette*) chiefly to the higher preliminary qualification now demanded by the University and the narrowing of the portals to Government employment. Altogether 703 degrees and licences have been issued by the College since its establishment in 1839.

THE medical graduation ceremonial in connexion with Glasgow University took place lately. After the degrees had been conferred, and the prizes and medals distributed, Professor J. B. Balfour addressed the graduates, referring at some length to the nature of their work both in the past and in the future. He afterwards entered into a vigorous defence of the position which such subjects as chemistry, zoology, and botany—especially the last—hold at present in the medical curriculum, and discussed also the relation which subsists between vegetable and animal pathology.

SURGEON-MAJOR JOHN MACKENZIE, M.D., Army Medical Department, has been appointed Surgeon on the staff of the Right Hon. M. E. Grant-Duff, the Governor of Madras. Dr. Mackenzie held a similar appointment on the staff of the Duke of Buckingham and Chandos, and returned to England with his Grace last year.

A BILL to regulate the practice of medicine in Arkansas has passed the Assembly.

As some criterion of the amount of labour of the late Congress, Sir James Paget stated at the closing meeting that the time spent in the sections exceeded that occupied by all the meetings through a whole year of the thirteen medical Societies of the metropolis. The secretaries and committee are busily at work preparing for the publication of the volume of Transactions, which it is most desirable to issue as speedily as possible.

WE learn that the British Government has already made inquiries as to the practical outcome of M. Pasteur's latest discoveries, and the best means of turning them to account.

THE INTERNATIONAL MEDICAL CONGRESS.

SECTION I.—ANATOMY.

THE first business meeting in the Section of Anatomy was on Thursday morning, the 4th inst., when an introductory address on "The Museum of the Royal College of Surgeons" was delivered by the President of the Section, Professor Flower, F.R.S. Amongst the audience we noticed many foreign anatomists of eminence, such as Kölliker, His, Braune, Hannover, Toldt, Caruccio, Rabl-Rückhard, as well as nearly all the well-known representatives of British anatomical science — Turner, Struthers, Macalister, Humphry, Parker, Allen Thomson, Holden, &c.

The subsequent sectional meetings have been regularly attended by all these gentlemen, and the papers and discussions have been of considerable value and interest. After the introductory address, a vote of thanks to Professor Flower was moved by Dr. Allen Thomson, and seconded, in a few well-chosen sentences in English, by Professor Kölliker. Professor His (Leipsic) brought forward the very important proposition that "the number of embryos which have been described are sufficient for anatomists to determine what are the normal characters of the human embryo, and that probably in no normal embryo is there ever a free vesicular allantois." Professor His described his embryonic preparations at some length, and showed some beautiful wax models and stereoscopic slides in illustration of his remarks; but Dr. Allen Thomson considered that the proposition was rather premature, inasmuch as some of the embryos mentioned were undoubtedly pathological, as most abortions must necessarily be. Dr. Thomson, as well as most of the other anatomists present, thought that there was more variability in the amount of attachment of the allantois to the chorion than Professor His had stated. In fact, the general conclusion of the meeting seemed to be that further specimens must be carefully examined before such a general proposition as that of Professor His could be adopted. The remainder of the sitting was devoted to a discussion on the characteristics of human crania in relation to race, and was introduced by Professor Turner in a paper "On the Cranial Characters of the Natives of the Admiralty Islands." The skulls described were eleven complete and one calvaria, all adults; seven males and five females. They were smeared with a red pigment, and one had an artificial nose and eyes modelled in a black material. They had been obtained in March, 1875, by the scientific staff of the *Challenger*, and entrusted to Professor Turner for description. The crania were markedly dolichocephalic; somewhat higher than broad; and while the females were microcephalic in capacity the males were mesocephalic, there being a difference of about 250 cubic centimetres between the two sexes. They approximated very nearly to the skulls obtained from the people inhabiting the coast-line of New Guinea. In the

subsequent discussion, Professor Flower pointed out the increasing value of such complete cranial descriptions in reference to the determination of races in places where there had been but little, if any, admixture with foreign nations, and Dr. Rabl Rückhard of Berlin gave a short account of forty-two skulls from New Britain, which had been collected during a German expedition to the Kerguelen Island. One point of interest was that these skulls, although coming from an island much nearer to the Admiralty Islands than to Australia, bore a greater resemblance to the Australian type than to those described by Professor Turner. Professors Toldt (Prague) and Lissauer (St. Petersburg) joined in a most interesting anthropological conversation, the latter referring especially to twenty-five Kalmuck skulls which he had examined.

On Friday, Professor Struthers described minutely a series of dry and wet specimens, showing a supra-condyloid process. He showed that, although well known to every anatomist in its ordinary form, when it is also of great importance to the operating surgeon, it had been overlooked in its rudimentary condition, which he had found to exist normally in every human subject which he had examined. In these cases it is found as a band or bands of fibres beneath the brachialis anticus muscle. A striking instance of its hereditary transmission was next described, and the theory of descent referred to as the only explanation of its presence, occurring as it does so widely amongst mammalia, from the ornithorhynchus paradoxus upwards to man; in the latter no teleological explanation was available. Professor Flower pointed out that the very variability of this process in the mammalia was in favour of its being transmitted by descent. It may be casually remarked that in the subsequent discussion all the anatomists who spoke regarded the evolution theory as the only possible hypothesis for the explanation of the occurrence of this and similar structures, and no one even ventured on a teleological argument. Professor Lesshaft next read two papers: (1) "On the forces which determine the shape of the bones, illustrated by numerous specimens from man and the lower animals;" and (2) "On the Position of the Stomach." He considered that this organ is placed more vertically than is generally supposed, but its oblique position, as shown in Dursy's model made under the supervision of Luschka, was strenuously maintained by Professors His, Kölliker, and Braune, and by Mr. Holden, who all agreed that a vertical stomach only existed in the young child. Dr. Laura of Turin read two papers on the minute structure of the spinal cord and medulla oblongata. Professor Adamkiewicz of Cracow made a short communication on the minute vessels of the spinal cord, and Professor Léon Tripier of Lyons showed some anatomical transparent preparations of sections of the limbs, and described his method of preparing and mounting them. These gentlemen exhibited their specimens and gave a further demonstration in the museum in the afternoon.

On Saturday the subject of cranial measurements was again brought forward by Professor Benedikt of Vienna, who described a new method of measurement by means of an instrument which he had invented, and showed some drawings which he had made by this process. Professor Hannover, of Copenhagen, next gave a most lucid and interesting account in English of the primordial cartilage of the human skull, and showed several embryonic cartilaginous crania and some special preparations demonstrating that Meckel's cartilages do not unite in the median line as is generally supposed, but that they are separated by a slight interval, and terminate in a hooked extremity, and Professor Redfern made a few remarks on the insignificance of the question as to whether ossification is preceded by cartilage, or takes place in an original fibrous membrane. Another very important communication was read by Dr. Cunningham of Edinburgh, on the importance of the nerve supply in determining the homology of muscles in different animals. He considered that attention should be given thereto, as well as to their attachments, but could not go so far as to accept the position of Dr. Ruge of Heidelberg, who has recently asserted that the nerve supply is an infallible guide in determining these questions. Professors Macalister, Kölliker, Struthers, Turner, and Mr. Forbes took part in the discussion, and showed that the segmentation of the primitive muscle masses was so very different in different animals that questions of homological relationship were very difficult to make certain of, and required great caution in handling, although their study was most interesting and captivating. Dr. Fasebeck of Brunswick gave a short description of some exquisite dissections which he has made to prove the independence of the small or motor portion of the fifth nerve, and Dr. Howard pointed out the anatomical mechanism by which a post-oral passage may be secured for the entrance of air into the lungs in cases of threatened apnœa.

On resuming the business of the section on Monday, Professor Kölliker gave an excellent *résumé* in English of his views on the formation of the embryonic mesoderm as seen by him in the rabbit. In this animal he had clearly traced its derivation from the cells of the ectoderm, but thought that it might arise differently in different animals, and so in some cases be derived from the endoderm as described by some other embryologists. Even at the earliest periods the cells of the mesoderm resemble connective-tissue corpuscles and not epithelial cells, although subsequently in certain places they may be transformed into the latter. Professors His, Schäfer and Allen Thomson took part in a discussion, after which Professor Kölliker in response to a request made by Professor Turner, explained his view of the formation of the chorda dorsalis from the mesoderm, and not from the endoderm as is often supposed. Professor Kölliker exhibited some specimens of embryos in support of his views, and illustrated his communication by some remarkably clear drawings on the black-board, as he proceeded with his remarks. The Professor next made a communication on behalf of his son, Dr. Theodore Kölliker, "On the Human Intermaxillary Bone." Dr. Kölliker had demonstrated its separate existence in fœtuses of eight weeks old, but at the end of the ninth week it was always fused with the superior maxilla. The number of teeth in the intermaxillary bone was not constant. Mr. Fenwick then gave a most interesting account of the subcutaneous veins of the trunk as dissected by him under the supervision of Professor Braune of Leipsic. He stated that he had been obliged to make as many as 500 or 600 injections in order to fill the system completely. They might be arranged into three zones: an upper zone running into the axillary vein, a lower zone into the femoral, and an intermediate zone, destitute of valves, emptying themselves indiscriminately into either of the other sets. The communication between the portal system and the epigastric veins by means of Sappey's vein in the round ligament of the liver was also shown. Professor Braune referred to the pump-like action on the venous circulation of the movements of the fasciæ at the points where the veins pass through, and to the arrangement of the valves at these points. The remainder of the session was occupied with a spirited discussion on Anatomical Teaching, introduced by a paper by Professor Struthers, comparing the British and Continental Schools, and another by Professor Keen of Philadelphia, on the advantages of a systematic use of the living subject in facilitating anatomical study.

On Tuesday Mr. Knott of Dublin began with an exhaustive account of "The Cerebral Blood Sinuses and their variations." Deviations were frequently found, and their details in forty-four skulls examined carefully with a view to relative frequency were laid before the section. Dr. Garson read a paper on pelvic measurements with a view to determining which are the most important for the purpose of comparing the pelves of different races. He thought that transverse measurements at the brim form a better standard than antero-posterior. Comparative measurements of the pelves of fourteen European females, five Australians, and thirteen Andamanese were given in illustration. Professors Turner, Thane, and Braune suggested other measurements as being also of proved utility. Two important papers on development were read by Drs. Rein and Lebedeff of St. Petersburg. Dr. Rein (in the course of an elaborate memoir on the mammary gland) took exception to Dr. Creighton's description of the surrounding fat tissue taking any part in the formation of the parenchyma of the gland, and did not confirm Gegenbaur's statement of the peculiar mode of the formation of the nipple in ruminants. Professor Sapolini of Milan described as a thirteenth cranial nerve the origin of the portio-intermedia of Wrisberg from the brain, and traced it into the chorda tympani; and Professor Hannover gave a demonstration of the funiculus scleroticæ—the remains of the primitive fœtal fissure—in the human eye. When the business of the section was finished, Professors Braune and His in very eulogistic terms thanked the officers of the sections for their courtesy, and the good arrangement of the work, and the session terminated.

SECTION III.—PATHOLOGY.

The whole of the space which we are at present justified in devoting to the Pathological Section might easily be occupied by an account of any one of the meetings held during the week. But, for the present at least, it will be better to consider the work as a whole, and to study rather the general impression it has left upon our minds. The President's Address has already appeared in our columns, and should be read by all who are interested in pathology, especially by the younger members of our body, who are often too disposed to accept as abnormal everything which deviates, even though but a little, from the typical. The questions dealt with by Dr. Wilks were, as was fitting, very general, and formed an admirable introduction to the detailed subjects which were speedily to follow. The close relation of the normal with the abnormal, the causes which lead to the abnormal, and the necessity of studying them in their widest sense formed the theme of the address; and in order to the more perfect knowledge of disease in man, a special recommendation was made that the pathological processes of diseases of animals and plants shall in the future be more closely studied. Dr. Wilks has, perhaps, scarcely taken into account the far greater difficulties which exist in the prosecution of the study of comparative and vegetable pathology.

The remainder of the afternoon was occupied in the delivery and discussion of two papers by Dr. Malherbe (Nantes), both treating of Tumours. In connexion with these papers arose the question of the international nomenclature of tumours, for although there appeared to be a unanimity of opinion on the nature of the tumours of which Dr. Malherbe spoke, the names by which he called these tumours were objected to by some of those who took part in the discussion. Certainly, one great object of the meeting of pathologists of many nations would be gained if an understanding could be arrived at as to the meaning which should be applied to certain of the more doubtful terms employed in the nomenclature of tumours. At present not only has each nation its own peculiar nomenclature of certain tumours, but, worse still, each school is apt to use the same term in a different signification, and thus the study of onkology is rendered far more difficult than otherwise it would be.

A similar complaint was made on the following morning (Thursday) in reply to a paper on Tubercle by Dr. Grancher (Paris). For Dr. Wilson Fox pointed out that since so many doubts had been of late expressed concerning the nature of tubercle, cases which were formerly called cases of tuberculosis, and which probably are still tuberculosis, are now often entered in the registrar's returns as cases of pneumonia or broncho-pneumonia, or the like, by which means the present time will furnish far fewer cases of death from tubercle of the lungs than past times. His suggestion that the term phthisis should be employed for all such cases seems to meet the difficulty. The discussion on Dr. Grancher's paper gradually lapsed into a discussion on the nature of giant cells; and even here the difficulty of adhering strictly to the lines of the debate was clearly shown. For while Mr. Treves spoke only of the giant cells of tubercle, and maintained that they are only masses of coagulated lymph, Dr. Creighton, who followed him, spoke of the giant cells which are formed in the normal placenta, and Professor Virchow of giant cells wherever they occur.

Two whole days devoted to the subject of Micro-organisms and their relation to disease may seem too large a slice of so short a week; yet when one thinks of the importance of the subject, and of the interest it is creating in every region of the scientific world, the time was not at all too long. On Friday the duty of introducing the debate was entrusted to Professor Lister. He contented himself with delivering a clinical lecture on sympathetic inflammation and counter-irritation. Professor Bastian followed with a very able speech, perhaps a little too pointedly addressed to, or rather against, Mr. Lister, but clear and to the point. His contention that micro-organisms may arise by changes in the protoplasm of degenerating, or decaying tissues (heterogenesis) was supported by an account of various experiments, and by strong, though possibly not invincible, arguments. By this time the room was very full and very hot, and the debate, which had been waxing warm, speedily assumed a fiery hue; for the next to follow was Professor Pasteur, who, looking very ill and obliged to sit at the speaker's bar, yet threw a marvellous energy into his speech. Unable to understand our language he had, he said, begged Mr. Lister to tell him in two words the purport of Professor Bastian's speech. It was, he understood, that micro-organisms may be formed by heterogenesis of the natural tissues. "Mais, mon Dieu," said the 'great father,' banging his fist upon the table, "ce n'est pas possible." "Never, never," he added, pointing his outstretched finger at the unfortunate Dr. Bastian, as if to denounce him, "are these organisms developed unless from previously existing germs or organisms." Professor Virchow showed how essential it is that the relation of the various micro-organisms to one another should be discovered. He believed it possible, by "domestication," to change the nature of certain of these organisms, and told of recent experiments bearing on this matter. On the following day (Saturday) the subject was resumed from a slightly different aspect by Professor Fokker (Groningen) and Professor Klebs (Prague), the former contending that the forces of the micro-organism, and even its capabilities for good or evil, depend upon the conditions in which it exists, the latter reviewing shortly the various organisms and diseases which appear to be associated with one another. Professors Hueter, Pasteur, and Béchamp, and Mr. Watson Cheyne conducted the discussion to its close. In connexion with this subject the admirable micro-photographs exhibited through the magic lantern by Dr. Koch must not be forgotten, or his cultivation methods for micro-organisms, demonstrated to a chosen few at King's College. The latter were especially interesting as displaying the advantages of cultivation in solids. In a single potato Dr. Koch was able to show several beds of micro-organisms, each bed containing a separate and apparently pure organism. By thus employing a solid medium the mingling of organisms, so difficult to prevent in fluids, is rendered almost impossible.

The discussion on Renal Disease (Monday) was scarcely so interesting as those of the preceding days. Sir William Gull read a short paper, which, however, was rendered long by continual repetition and interpolation. The views of Drs. Gull and Sutton are well known, and those of Dr. Lancereaux (Paris), who read a paper on the same subject, were somewhat in a similar strain; but they failed to draw Dr. George Johnson into the discussion, who contented himself with acknowledging that he had formerly been mistaken in believing that the thickening of the intima of the arterioles was a thickening of all the elastic structures of the inner coat. The second part of this discussion dealt with the histology of the various forms of Bright's disease, but this too failed to elicit any very new or striking facts.

On the last morning the section was thinly attended, partly because none of the great "stars" of the Congress were advertised to attend, partly because the subjects were of such a kind that discussion was practically in the hands of a very few persons; yet some of the work was eminently interesting; for example, the charmingly lucid demonstration by Professor Pierret (Lyons) of the normal relations of the sensory and motor tracts of the cerebral nervous apparatus, and of the manner in which the sensory tract is affected by systematic inflammation. Professor Pierret had already, some days previously, exhibited a number of excellent sections of the medulla and pons, in which the course of certain of the nerves could easily be traced to their origin in the ganglia. Dr. Dreschfeld also gave an account of what is believed at present to be a unique case of primary lateral sclerosis, actually illustrating in fact what has been regarded by nerve-pathologists as probable in theory. By midday the work of the section was completed.

The description of a large portion of the museum properly falls to the lot of this section, for it was largely composed of pathological specimens and drawings. Amongst other things well worthy of note was a life-size wax model of a woman suffering from affection of the articulations in connexion with tabes dorsalis, lent by Professor Charcot, and the bones removed from the same patient after death. The model was, indeed, the most attractive object of the museum, for it was admirably executed. Very interesting, too, was a skeleton from the Brighton Hospital of a man who had apparently suffered from rickets and mollities ossium. The various metropolitan hospital museums lent their choicest specimens: wax models of skin disease from Guy's; osteitis deformans from St. Bartholomew's; Sir Astley Cooper's case of ligature of the abdominal aorta, and specimens of skilful mounting and preparation by Mr. Stewart from St.

Thomas's; madura foot from University and St. Bartholomew's. The military and naval hospitals contributed gunshot wounds of bones and joints; and the Dublin College of Surgeons entrusted to Mr. Abraham's safe-keeping a classical series of cases of Colles's fracture, and a very rare, if not unique, specimen of fracture of the spine of the tibia. In addition, there were numerous tumours in bottles, and casts of tumours, and drawings of tumours; and, lest vegetable pathology should be omitted, Mr. Stephen Paget had furnished a collection of tumours from various trees, the collection on which his father's address to the British Medical Association last year was founded.

Looking back upon the work of the Pathological section, and estimating it as fairly as one can in the midst of so much business and bustle, it may be said that although the papers and communications were not nearly so numerous as those furnished to some of the other sections, and although very few new facts in pathology were forthcoming, the discussions on the whole were sufficiently active, the communications were for the most part of value, and the demonstrations of microscopic slides and of cultivation methods were thoroughly good. That a healthy stimulus will be produced on workers in pathology, especially in this country, by the meeting and conversing with eminent pathologists from many countries, cannot admit of doubt. It is not unworthy of notice that almost the whole of the work of the section was done by German, French, and English members, while the Americans, who were present in large numbers and took an active part in the work of other sections, furnished only a single short communication, so little is pathology even yet studied by American doctors. We must not forget to state that the President and secretaries were indefatigable in their attendance on the section, and that the members owed much to their courtesy and care.

SECTION IV.—MEDICINE.

IN this section it must be admitted the proceedings were not marked by as much freshness and novelty, nor the debates conducted with as much animation, as in some of the other sections. This may have been partly due to the fact that the closely allied departments of Pathology and Therapeutics necessarily embraced subjects which in the absence of such sections would have came under the head of Medicine. This was well exemplified on Monday last, when, in place of discussing, as arranged, the papers on Bright's disease, read before them on Saturday, the members of this section adjourned to hear their President open a debate on the same subject in Section III. In spite of this, however, much work was done, there being about forty papers on the programme, of which no fewer than one-third dealt with diseases of the nervous system. Sir W. Gull, in his presidential address, singled out the chief topics that would be discussed, and following in his lines we may most conveniently convey an idea of the nature and quality of these topics by treating them in groups and dwelling, so far as our limited space will permit, on the main points debated. In the earlier portion of his address the President had sketched out the share taken by each nation in the early development of medical science, and the proceedings of the section reflected fairly well the different nationalities comprising the Congress, and several papers were read and speeches made in the French and German tongues. The disease of the nervous system which had the largest share of attention bestowed upon it was locomotor ataxy. The first paper read was by Professor Langenbeck, upon nerve-stretching in this disease, the author relating successful cases where the operation undertaken to give relief to the pains had ameliorated the actual ataxic symptoms, the inference being that stretching of the sciatic nerve initiated changes of a beneficial character in the spinal cord itself. As Sir W. Gull remarked, this introduced a new idea on the nature of ataxy, and Dr. Ogle asked whether the curative effect of nerve-stretching was proved to occur in cases where the lesion of the spinal cord was primary as well as in those cases where it might be considered secondary to peripheral nerve-changes. Professor Eulenberg of Greifswald also spoke, and Dr. Brown-Séquard supported the author's views by giving the results of experiments on nerve-stretching which he had found to influence the sensory functions of nerves beyond the region of that actually stretched. Dr. Buzzard, in a paper on certain little recognised phases of *abes dorsalis* gave a very clear account of the existence of a class of cases in which the classical symptom of ataxy is absent. Such cases, he maintained, are marked by the absence of the knee-phenomenon and by the presence of *crises gastriques*, and sometimes of joint affection; cases in which the gastric symptoms endured for years and predominated over the other characters of tabes—such as the Argyll-Robertson phenomena and lightning pains—and led to diagnosis of gastric cancer, gout in the stomach or intestinal obstruction. He also referred to cases where other of the symptoms of tabes predominated, and adopted Pierret's view that the disease is essentially a chronic inflammation of sensory fibres. Dr. Buzzard lays great stress upon the importance of examining for the patellar tendon-reflex in all such cases; and it is to be regretted that time did not permit of a discussion upon his paper.

A paper by Professor Erb of Leipsic on the rôle of Syphilis as a cause of Locomotor Ataxy gave rise to considerable debate; and certainly the author laid himself open to the criticism of proving too much, for whilst he found evidence of previous infection in 88 per cent., there were no secondary symptoms in 29 per cent., and he used this as an argument in favour of the unicist view of syphilis. By comparing these statistics with those of other male adults not the subjects of tabes, he found that only 23 per cent. of these had been infected at all, and but 12 per cent. had secondary syphilis. The conclusion arrived at was that "tabes in 90 per cent. of all cases is occasioned by syphilis as one of its etiological factors," and it may be pointed out that this is in agreement with the previous statements of M. Fournier and Dr. Gowers on the subject. Dr. Althaus of London, in the debate said that he had obtained a history of primary syphilis also in 90 per cent. of his cases of ataxy, but of secondary syphilis in 40 per cent., and he contrasted these results with a like inquiry into the antecedents of cases of other nervous diseases taken consecutively. But, as Dr. Gairdner remarked, it was a matter of insuperable difficulty to arrive at a true history of antecedent syphilis (especially where there were no secondary symptoms) in any large number of cases, and he could not accept the conclusions of Prof. Erb and Dr. Althaus on this ground alone. And exception might certainly be taken to one of the cases cited by the author, where the search for syphilitic infection (the case was a remarkable one of ataxy in a girl nine years old) resulted in the discovery that the patient's maternal grandfather had been the subject of it! Opposition to the view of Erb was also directed from the pathological side, M. Lancereaux of Paris maintaining that the lesions of locomotor ataxy do not present the characters of syphilitic sclerosis and syphilitic lesions in other organs; and his conclusion was that syphilis and ataxy were coincident, not correlated, believing the reason of the predominance shown by Prof. Erb to lie in the fact that ataxy occurred in individuals addicted to sexual excesses. Dr. Banks of Dublin thought there was a positive etiological connexion between syphilis and tabes; and Dr. Zambuco of Constantinople, and Prof. Rosenstein of Leyden, also spoke on the matter. Sir W. Gull, in closing the debate, pointed out that the syphilitic poison produced indirect effects, inducing degeneration of tissues. The debate has not, therefore, led to definite results; but, taken in connexion with the supposed curative effects of nerve-stretching in this same disease, it seems still to leave the question more open than Prof. Erb would wish us to believe. A paper by Prof. Ball and Dr. Thebierge of Paris was contributed to show the dependence of perforating ulcer of the foot upon locomotor ataxy, and in demonstrating its probable connexion with trophical disturbance the authors were in harmony with the views of Mr. Savory and Mr. Butlin in their valuable contribution to the Royal Medical and Chirurgical Society a year or two ago.

Dr. Brown-Séquard had undertaken to address the section upon the subject of Localisation of Disease in the Brain and Spinal Cord, from a pathognomonic and diagnostic point of view, and the abstract of his communication offered a very exhaustive field for his remarks. He contented himself, however, with giving a brief oral disquisition, his main contention being that groups of symptoms rather than isolated manifestations must be taken into account in the attempt to correctly localise disease in the brain or cord; and that the effects of a lesion in the centre were produced at a distance, and were irrespective of the direct paths of transmission of nervous impulses—which he illustrated by the fact that a puncture of the medulla will produce degeneration in the sciatic nerve, and a lesion of the sciatic nerve induce

changes in the motor centres of the brain. He spoke of a dynamic influence as operating thus on parts at "a distance," and said that the anterior pyramids might be cut without paralysis ensuing, and then their cut ends (central or peripheral) when irritated produced movements on the same side as the lesion—i.e., in parts where the pyramidal fibres do not go. M. Charcot, on the other hand, contended that the facts of clinical and pathological observation were indubitable, and could not be harmonised with the experimental evidence adduced by Dr. Brown-Séquard, who, however, asserted that he believed that certain elements were endowed with distinct functions. Although it would have been obviously impossible for Dr. Brown-Séquard to have traversed all the lines laid down in the abstract of his paper, his communication suffered somewhat in being as condensed as it was; and the precise points of difference between him and the school represented by Charcot were not clearly brought out. The section had the opportunity, however, of hearing the views of that school enunciated by Dr. Hughlings-Jackson, who indeed is entitled to be considered the pioneer in localisation-theory. His paper was upon the subject which led to his suggestion of the existence of specialised motor centres—viz., epileptiform convulsions from cerebral disease, and was a masterly review of the whole subject. Dr. Jackson dealt with the following points:—(1) Starting points; (2) ranges; (3) march of spasm; (4) suddenness of onset, rapidity of spreading and direction of seizures; (5) post-paroxysmal condition (paralysis); (6) post-epileptiform aphasia; (7) affection of consciousness; (8) locality of lesion (anatomical diagnosis); (9) physiology of lesion; (10) pathology of brain; and (11) treatment; and his paper was followed by a debate shared in by Dr. Brown-Séquard, Dr. Sturge, Dr. H. Weber (who cited instances of left epileptiform seizures, followed by weakness on the left side and aphasia), and Prof. Baumler of Strasburg, who suggested the term dysphasia to include the various forms of speech-defect following upon the attacks. Dr. Jackson in replying said, that with reference to aphasia and left-sided convulsions, he had always maintained the existence of two conditions in every case of aphasia, and did not believe in any special speech centre.

The subject of Addison's disease was opened in a paper by Dr. Greenhow, which comprised the relation of a recent case, and a general summary of known clinical and pathological facts concerning this remarkable affection. He pointed out that research must be especially directed to changes in the abdominal sympathetic and the pneumogastric nerve, a case recorded by Dr. Paget of lymphadenoma, in which these structures were involved and the suprarenal capsules unaffected, where a deepening pigmentation of the skin was observed during life, giving support to this view. In the debate which ensued Dr. Semmola of Naples said that at the Brussels Congress he had related a case diagnosed as Addison's disease where improvement followed upon electrical treatment, but death occurred some months later after an attack of acute dyspepsia. No opportunity was given, however, of confirming the diagnosis in this case, which Dr. Semmola had quoted in support of the view he held, that the suprarenal capsules need not necessarily be the seat of disease, and he exhibited a drawing showing morbid changes in the spinal cord and cœliac ganglia, which he held to be the essential lesions of "Addison's disease." A like position was maintained by Dr. Guéneau de Mussy, who had met with a certain number of cases of bronzed skin, without suprarenal disease, but with affection of the abdominal sympathetics, and he adduced in support of this the cutaneous pigmentation of pregnancy, and the occurrence of pigment moles on the forehead in cases of abdominal tuberculosis, a phenomenon to which he attaches so great significance as to regard it as almost pathognomonic. Dr. Zuelzer of Berlin spoke of the changes in the urine, and Dr. Gairdner, of Glasgow of the association of leucoderma with Addison's disease, instancing a noteworthy case which had come under his notice. Sir W. Gull, remarking that he had seen Addison's earliest cases, did well to remind the members of the importance of the asthenia of Addison's disease, and of not laying too much stress upon the pigmentation. He believed the suprarenal capsules were nervous organs, in structure most resembling the pituitary body, so singularly cared for in its special fossa at the base of the skull, the function of which is just as much unknown. He expressed a doubt as to the prognosis being universally unfavourable, and thought that we should have to study those cases which do not die. Dr. Greenhow, in his reply, maintained that Addison's disease commenced in the suprarenal capsules, and that the association of leucoderma was a coincidence, but not a very rare one, with the cutaneous pigmentation.

Several communications were read upon the subject of Bright's disease. Dr. Rosenstein of Leyden, in his paper, separated first of all such conditions of the kidney as are non-inflammatory as being independent affections; and he then discriminated between acute and chronic Bright's disease, anatomically and clinically. The acute form, characterised by emigration of colourless blood-corpuscles, epithelial, and later, interstitial changes, passes very rarely into the chronic form. The chronic form is a diffuse inflammation of all the tissue elements of the kidney—represented by the "large white," the "variegated," "smooth contracted," and the "granular white" kidney; the red granular kidney starting from endarteric changes in the renal vessels, and to this form the senile contracted kidney is closely allied. Clinical observations can only recognise whether the organ is enlarged or contracted; and it is unable to distinguish between "parenchymatous" and "interstitial" forms. This is a clear statement of the results ensuing upon modern histological research; and had the paper been read in Section III., it would have attracted more attention. But, unfortunately, as above said, no discussion ensued in this section upon the subject. Dr. George Johnson contributed a clinical observation on the evidence of white blood-cell casts as indicative of glomerulo-nephritis; and Dr. Grainger Stewart read a paper upon the condition of the urine in Bright's disease, and the clinical value of its examination. Dr. Semmola of Naples argued that Bright's disease might be induced by alterations in the albumen of the blood. This paper was followed by a brief communication from Prof. Stokvis of Amsterdam, who related some experiments showing that the subcutaneous injection of albumen could produce glomerulo-nephritis, an experimental support of Dr. Semmola's view. Dr. Mahomed raised a very important subject, which he entitled "Chronic Bright's Disease without Albuminuria," including an analysis of cases of high arterial pressure producing the cardio-vascular changes characteristic of chronic Bright's disease, with red granular kidneys but without albuminuria; the number of cases being 61, 21 of which were fatal. Dr. Mahomed stated that his views would appear at length in the forthcoming volume of Guy's Hospital Reports, but it would certainly have been well for the question to have been thoroughly debated in the section, bearing as it does in so important a manner upon clinical observation.

The subject of Gout was dealt with under two different aspects—viz., in a paper by Dr. Garrod, upon Eczema and Albuminuria in connexion with Gout, and in one by Mr. Jonathan Hutchinson, on Rheumatism, Gout, and Rheumatic Gout. Dr. Garrod's observations included a very large number of cases of undoubted gout, having selected cases in which there had been, at one time or another, arthritic manifestations; and he conclusively proved the very great frequency with which eczema occurred in such subjects, and also renal disease, pointing out the characters of the renal affections. Mr. Hutchinson's paper embraced a wider field. He defined rheumatism as, in the main, a liability to joint-disease, brought about by exposure to cold, and not through reflex nervous influences—a catarrhal arthritis; and gout as, in the main, a liability to joint-disease, brought about by certain articles of food, by defects of assimilation and of excretions—a humoral arthritis. He thus establishes a certain link between the two—viz., the liability to joint-disease; but he was especially careful to point out that, in either, by hereditary transmission a "gouty" or "rheumatic" diathesis may be formed. In support of his view of an underlying arthritic tendency or condition, he referred to the remarkable frequency of "rheumatic gout," and of the association of deposits of lithate of soda in joints, with lesions of cartilage and bone, hitherto considered as typically rheumatic, and concluded his lucid exposition of the subject by referring to the existence of certain maladies which "are to be affiliated with gout and rheumatic gout, as certain forms of iritis, hæmorrhagic retinitis, chronic rheumatoid arthritis, some forms of glaucoma, lumbago, sciatica, and neuralgia, nervi digitorum, and possibly hæmophilia." An interesting debate ensued, in which the speakers mostly aimed at showing that there was nothing in common between gout and rheumatism, but they must have missed the point of Mr. Hutchinson's thesis, for in his reply he claimed them as adherents to his cause. Thus Dr.

Garrod thought that the great aim was to differentiate diseases and not to merge them into one another; that the gouty condition was perfectly distinct and separable from the rheumatic; that gout was almost unknown in Scotland, where rheumatic arthritis was common; that erosion of articular cartilages occurred as a consequence of uratic deposit in chronic gout; and that although the children of gouty parents suffered from rheumatic arthritis it was not because there was an interchange of the diathesis, but simply because they were the offspring of debilitated parents. He also believed that gonorrhœal rheumatism had more analogies with pyæmia than with rheumatism. Dr. W. Roberts said that in Manchester cases of gout in hospital practice came mostly from London, which he attributed to the porter-drinking habits of the London poor; and Dr. Quinlan of Dublin said that since the people there had taken to drinking porter instead of whisky gout had become common, whereas previously it was almost unknown. Dr. Stokin of Amsterdam said that true gout was very rare in his city; he had seen only two cases, and those in debilitated women living in unhealthy conditions. Dr. Maclagan of London said that true gout was very rare in Scotland, but acute rheumatism and rheumatic arthritis were common—the latter especially in weakly girls and women. He believed rheumatism to be due to a miasm, and not to the influence of cold and wet; for those most liable to be influenced by cold and wet, the very young and the aged, did not suffer from rheumatism. Dr. Grant of Montreal said that gout was hardly known in Canada, whereas rheumatism, arising from insufficient protection against cold, was common. Dr. Ord thought the arthritic changes were common in association with deposits of urate of soda in joints; and would use arthritis as a term common to both gout and rheumatism. In his view, gonorrhœal rheumatism was more allied to rheumatic urethritis than pyæmia—suppuration was not common in it, and similar articular affection accompanied arthritis, prostatitis, &c., not gonorrhœal. Dr. Duckworth pointed out that the uratic deposits signified gout, and that the hereditary gout occurred apart from dietetic errors. He considered the extensive arthritic changes sometimes seen in gouty joints were very rare, but admitted that sometimes a case appeared to present a coalescence of gout and rheumatism. There was often, however, great difficulty in getting a reliable history of gout. In his reply Mr. Hutchinson not only showed that he granted the hereditary transmission of gout, and that lithates were deposited in the tissues in the disease, but that gout and rheumatism may mingle and often do mingle in the same subject. Indeed, so far as we understand Mr. Hutchinson's position it is simply this: that there is a tendency to arthritic disease which may partake of the characters of gout or of rheumatism, alone or conjointly, according to the influences to which the subject may be exposed, and that position was not strictly contested in the debate.

Professor Austin Flint's paper on the Analytical Study of Auscultation and Percussion, which he read on the last day of the session, was one of a very important character, aiming at the simplification of the terminology of physical pulmonary signs, and basing the description of such signs upon the character of the sounds themselves, and independent of the mechanism by which they are produced. He was followed by Dr. Douglas Powell on the value of Bacelli's sign "Pectoriloquie Aphonie" in the differential diagnosis of fluid effusion into the pleura. Dr. Bacelli maintained that in a case of pleuritic effusion, if the whispered voice be well conducted and pectoriloquous, the fluid may be certainly regarded as serous, but if ill-conducted or inaudible the fluid will be found to be purulent. Dr. Powell's own observations led him to the conclusion that the sign in question is not pathognomonic, although of considerable value in association with other signs. Sir W. Gull said that Dr. Bacelli's sign is no new thing, and referred to Dr. Addison's observations upon the same sign in 1846; and his own (Sir W. Gull's) explanation of them on the physical ground of tenseness of the membrane and chest wall. Prof. Ewald of Berlin agreed with Dr. Powell, that Bacelli's sign is not reliable, but that the only certain means of diagnosis is by puncture. Prof. D'Espine of Geneva also spoke. Dr. Mahomed urged that the Congress should take action to draw up a single code of terms, but Dr. C. T. Williams pointed out that difficulty lay in the differences in the instruments employed, and Dr. Flint in his reply echoed Dr. Mahomed's wish that there should be established a general uniformity of terms. On the proposal of Sir W. Gull a committee was formed, consisting of Prof. Ewald, Prof. D'Espine, Dr. Douglas Powell, Dr. Austin Flint, and Dr. Mahomed, to report to the next Congress. Dr. C. T. Williams then read a paper on the Treatment of Phthisis at High Altitudes, drawing especial attention to the increased expansion of the chest following residence at these sites, and attributable to diminished barometric pressure. Dr. Norman Chevers pointed out the bad influence of hot climates on phthisis. Dr. H. Weber of London said that it was not a mere question of chest expansion, but of purity of air, which at high altitudes, such as Davos, does not promote fermentation. Similar effects were produced at Algiers, Madeira, and other aseptic climates. When hereditary influence strongly marked cases in the first stage even advance at Davos and Colorado. But everywhere general medical supervision and management are essential. Dr. Wilson Fox said that phthisis was due to impure air, bad food, inheritance, and possibly septic causes. Nearly all high altitudes are curative, even in hot climates as Bloemfontein. The finest shaped chests are liable to tubercular affection. He asked for information as to how long this cure lasts. If phthisis is to be cured by asepticism, then a six-months' residence is sufficient; but if desirable to get changes in shape of chest, a longer time must be spent; and he appealed to those at Davos to keep their patients through the summer as well as winter. Dr. Alan Herbert of Paris urged physicians to establish the indications for sending patients to Davos, and also contra-indications—especially cardio-vascular disease.

Sir W. Gull, in closing the session, said he did so with great regret. There had been one uniform sentiment governing all—viz., a desire to work *pro bono publico*. He thanked the members for the courtesy shown to himself.

We must bring this brief survey of the work of the section to a close, and must be contented to enumerate a few of the chief remaining subjects which were under discussion. Of these one of the most interesting was raised in a paper by Dr. Clifford Allbutt, upon the treatment of scrofulous neck. He contended for early surgical interference to remove the enlarged glands, and thus anticipate the evils of their suppuration or caseation, and the liability to constitutional infection thereby supervening. M. Jules Guérin recapitulated some views on the etiology of typhoid fever he had previously enunciated before the Paris Academy of Medicine, to prove that the disease originates from "fæcal intoxication," but, as Sir W. Gull remarked, he did not sufficiently discriminate between the septicæmic effects and the conditions of the febrile process itself. Dr. W. Roberts drew attention to the presence of bacteria in the bladder (bacteruria), giving rise to fermentation of the urine and vesical irritation, a condition removable in a few days by 30-grain doses of salicylate of soda twice a day. Papers were read also by Prof. Eulenberg of Greifswald, on Graphic Representations of Tendon-Reflex; Dr. D'Espine of Geneva, on Clinical Cardiography; Dr. Redard of Paris, on Local Thermometry; Prof. Lépine of Lyons, on Biliary Secretions in Morbid States; and Prof. Zuelzer of Berlin on the "Phosphor Acids of the Urine."

The absence—almost complete—of papers bearing upon the treatment of disease, has been the subject of some expressions of surprise in relation to the work of this section of medicine; and there may be some room for wonder at the contrast it presents in this respect to the section on surgery, where treatment formed so large a part of the subject-matter. It must not, however, be inferred that medicine has no word to say upon the treatment of disease—there are many subjects which might be indicated that would have been usefully brought under discussion at an International Congress, subjects of great importance upon which opinions might have been sought; and whilst it is legitimate to regret that the opportunity for such an interchange of opinion was not seized, the omission must not be wholly laid at the door of the executive, for a special place had been retained in the programme for the "Treatment of Disease." Perhaps if the invitation had been made in less general terms, and some of the many open questions indicated we should not have to record so barren a result.

SUB-SECTION IV.—DISEASES OF THE THROAT.

Both in the number of those present at the meetings and in the distinguished position occupied in the medical world by those who took part in the discussions, the Sub-section or Diseases of the Throat may certainly be considered as

one of the most successful departments of the Congress. The first paper read was one of great interest to all laryngologists, as in it Signor Manuel Garcia detailed how it came to pass that he invented the laryngoscope.

Dr. Vivian Poore's case of Web in the Larynx, probably congenital, excited considerable interest, the general opinion being that though these cases were not necessarily congenital, the one before the meeting certainly was.

Dr. Rumbold's (St. Louis) paper went to prove that the spray producer was the only plan which at the same time removed morbid secretions from the affected surfaces without causing the least irritation.

In opening the discussion on Diphtheria, Dr. Morell Mackenzie stated that, so far as local treatment was concerned, he placed his sole reliance on varnishes—i.e., remedies which exclude the air from the false membrane—tolu dissolved in ether being the most serviceable. There was an almost complete unanimity against the forcible removal of false membranes or the cauterisation of the affected surface. Ice in the early stages, steam inhalations, with or without antiseptics, in the later stages, were generally recommended. Lactic acid and lime-water were praised as being the best solvents, and boracic acid as an antiseptic. In opposition to the views generally held, Dr. Meyer brought forward, for Dr. Nix, a Danish medical practitioner, his plan of treatment, which consisted in scraping away the false membrane and cauterising the scraped surface with solid nitrate of silver. Dr. Lennox Browne recommended the removal of enlarged tonsils, even during an attack of diphtheria, if they offered any impediment to respiration. In the discussion on the "Pathology of Laryngeal Phthisis" there was great difference of opinion both as to the early recognition of the disease and its diagnosis from syphilitic ulceration. Professor Krishaber of Paris considered the diagnosis of tuberculous laryngitis during the patient's life very easy, whereas Professor Rossbach of Wurzburg was of opinion that certain diagnosis of laryngeal consumption was only possible if pulmonary consumption be simultaneously present, otherwise tubercular and syphilitic ulceration can only be distinguished from each other by their different behaviour to iodine. On the other hand, Dr. Fränkel of Berlin said that the treatment by iodide of potassium would not differentiate it from syphilis, as tuberculous ulceration sometimes heals under the iodide. As regards prognosis, the view of the laryngologists who spoke was more hopeful than that generally held by physicians. Professors Gerhardt and Rossbach (both of Wurzburg) asserted their belief in the absolute curability of the disease.

The discussion on the motor neuroses of the larynx centred chiefly on the clinically and anatomically proven fact of the proclivity of the abductor fibres of the recurrent nerve to disease, both central and peripheral. Professor Gerhardt, who introduced the subject, was opposed, in the present state of our knowledge, to any premature hypothesis to explain this curious fact. The papers introducing the discussion on "Neuroses of Sensation of the Pharynx and Larynx" were very opposite in character, that of Professor Schnitzler of Vienna being a short, practical one, whereas the one sent in by Professor Elsberg of New York, and read (in part) by Dr. Morell Mackenzie, was very elaborate.

In discussing the formation of Mucus in Larynx and Trachea, Professor Rossbach pointed out that the secretion was independent of central nerve influence. Dr. Fränkel drew attention to the fact that the conditions in the trachea on which the author had based his statement were different from those in the nose and pharynx. Dr. Bayer of Brussels, in his paper on "Influence of Female Genital Organs upon Organ and Formation of Voice," detailed all the possible consequences of this connexion. Drs. E. Fränkel and Semon insisted that the prognosis in these cases ought to be guarded, as even when apparently dependent upon uterine disease, the cure of this latter was not necessarily followed by the cure of the laryngeal trouble. The discussion on "Indications for Extra or Intra-Laryngeal Treatment of Growths in the Larynx," which was opened by Dr. Fauvel of Paris and Professor Burow of Konigsberg, affirmed the statement of the latter, that only if an experienced laryngologist had established the inexpediency of the intra-laryngeal treatment may the extra-laryngeal method be adopted; the only marked exception being in favour of thyrotomy in certain cases. Dr. Solis Cohen of Philadelphia and Professor Lufferts of New York were, however, rather more in favour of the extra-laryngeal mode than their German *confrères*, but even they limited it to exceptional cases. There was a general agreement with Dr. Semon that of necessity the removal of intra-laryngeal growths must remain in the hands of laryngologists who had devoted special attention to the subject.

Professor Krishaber pointed out that in children the removal of laryngeal growths may be accomplished with comparative ease, by guiding the forceps into the larynx by means of the forefinger, and seizing the growth without the aid of the mirror.

Dr. Hering's (Warsaw) paper on Results of the Mechanical Treatment of Laryngeal Stenosis was based upon statistics of all hitherto recorded cases, one hundred in number. He attributed the want of success reported as not due to the insufficiency of the method, but evidently to want of patience on the part of the patient or surgeon, or to the non-adaptibility of the plan of treatment to the particular case. This view was agreed to by all who took part in the discussion.

The discussion on Indications for the Complete or Partial Extirpation of the Larynx, which was opened by Dr. Foulis of Glasgow, revealed a great difference of opinion between the surgeons and the laryngologists, the former being disposed to include a larger number of cases among those suitable for the operation than the latter. Professor Czerny of Heidelberg, to whose careful experiments we are indebted for this operation, was present and spoke on the question.

Professor Voltolini of Breslau, the oldest advocate of the method, introduced the discussion on the Galvano-caustic Method in Nose, Pharynx, and Larynx. The general opinion was in favour of this plan in the nose and pharynx; in the larynx its utility was more doubtful. Some of the speakers, notably Dr. Foulis, dwelt on the advantages of the actual cautery.

In his paper on the Pathology of Nasal Catarrh, Dr. Bosworth of New York asserted that rhinitis atrophica was a primary affection, and not a secondary stage of the hypertrophic variety.

The subject of Adenoid Vegetations in the Vault of the Pharynx was introduced in an exceedingly able paper by Dr. Meyer (Copenhagen), to whom the credit of having first directed attention to these growths must be assigned. His statements were supported by Dr. Lowenberg (Paris) in his introductory paper. Both remarked on the frequency with which this affection is overlooked, and dwelt on the importance of directing more attention to it, as it is so frequently the cause of ear troubles, nasal voice, and nasal respiration, and even affections of the conjunctiva. These growths are almost exclusively met with in childhood and youth, hardly ever occurring after the age of twenty-five. As regards treatment, very different methods were suggested, the most remarkable of which were those brought forward by Drs. Meyer, Lowenberg, and Guye.

The discussion on the Nature and Treatment of Ozæna elicited a great difference of opinion. Dr. Krause's view that the fetor, which is such a prominent feature in these cases, was due to the formation of fat and the decomposition of fatty acids, did not find any supporters. For the palliation of this disease, which all agreed was not curable in the strict sense of the word, syringing after Michel's plan and the use of Gottstein's tampon were recommended.

The demonstration of patients, instruments, &c., for the Sub-section of Diseases of the Throat took place at the Hospital for Diseases of the Throat and Chest, Golden-square, and was very numerously attended.

Dr. F. Semon showed an interesting series of five cases of Bilateral Paralysis of the Abductors, on one of whom he had to perform tracheotomy for the relief of impending death from asphyxia, and one case of Anchylosis of the Crico-arytenoid joint.

Dr. Poore exhibited a patient with a Web in the Larynx, probably congenital.

Professor Krishaber brought for inspection a set of Tracheotomy Tubes; he stated that there is a definite relation between the height of the body and the diameter of the trachea, consequently the size of the tracheotomy cannula should be adapted to the patient's height.

Dr. Foulis showed an apparatus for heating the actual cautery, also instruments for removing larynx, artificial larynges and two larynges he had removed.

Dr. Cresswell Baber exhibited a self-retaining nasal speculum, and a snare which could be fixed at any angle.

Dr. Michel demonstrated his method of removing adenoid vegetation by means of the galvano-caustic loop.

Dr. Fränkel exhibited a mouth dilator, a modification of Whitehead's, with the addition of a palate hook. This may be regarded as one of the most valuable of the instruments exhibited. He also showed a prism for inspection of the cavities of the body.

Dr. Morell Mackenzie sent a patient on whom he had performed internal œsophagotomy, and a case of spasm of the tensors of the cords, and showed his œsophagoscope. Störch's Œsophagoscope was also shown.

Dr. Whistler exhibited a patient with syphilitic stenosis of the pharynx, in whom he had established a communication between the pharynx and posterior nares. Dr. Cadier exhibited his tube laryngoscope, a most inconvenient and unpractical instrument. Dr. Tornwaldt showed a tampon filled with water for the dilatation of laryngeal stenosis. Dr. Bosworth brought forward his mode of removing polypi, insisting on the advantage of using No. 5 steel piano wire. Dr. Rumbold showed his spray producers; Mr. Spencer Watson a self-retaining nasal speculum and other instruments for the treatment of diseases of the nose, and Dr. Prosser James a series of laryngeal lancets and probes, each being forged out of one piece of solid steel.

On Monday afternoon a supplementary demonstration of instruments, &c., took place. Professor Voltolini showed his battery and demonstrated an ingenious mode of removing needles and other articles of iron from the larynx by fixing them by means of a powerful magnet, and then introducing a knitting needle to which they attach themselves. Professor Caselli showed his galvanic caustic tracheotome, Dr. Meyer exhibited the instrument he employs in the removal of adenoid vegetations, and Dr. Böcher an improved form of lamp for laryngological and other purposes. Dr. Goodwillie demonstrated the use of a surgical engine for the removal of exostoses &c.

SECTION V.—SURGERY.

Mr. Erichsen's address, which we printed last week, was a very apt introduction to the work of this section, for after a few introductory remarks on the progress of surgery, he briefly alluded to each of the eight subjects specially chosen for discussion, and tersely pointed out the main lines along which such discussions could most profitably proceed. This section has been well attended throughout, and has worked very hard, having prolonged its meetings beyond the time fixed. But what has enabled the section to compass nearly all the work proposed has been the admirable manner in which the wise rules of debate have been courteously but firmly carried out by the President. After the address to which we have alluded, Staff-Surgeon Reid, who was the first to treat aneurism by Esmarch's elastic bandage, opened a discussion on this subject with a paper recording his own case, and pointing out that sacculated aneurisms were the only ones suited for this treatment which cured the aneurism by causing coagulation of the whole mass of blood in the sac. Mr. Pearce Gould followed much on the same lines; he gave a table of 62 published cases in which this treatment had been employed, from which he drew the conclusions that the more important element in the cure is the organisation of the clot in the artery itself, and that failure may result either from the blood not clotting at all, or from washing away of the clot first formed. He further pointed out that the danger of over-distending the other arteries or of overtaxing a weakened heart ought to be guarded against, and that preparatory treatment to increase the plasticity of the blood was desirable. Mr. Bryant referred to three cases in which he had failed to cure the aneurism, and regarded the capillary hæmorrhages in the part of the limb not emptied of blood as liable to lead to gangrene. Mr. Pemberton related a case, fatal from gangrene, where it was found that the vein was completely obliterated opposite the aneurism, which was occluded with coagulum. It is difficult to accept Mr. Bryant's view; even admitting the facts to be as he states, capillary hæmorrhage in the ham cannot cause gangrene of the toes, and obviously there can be no capillary hæmorrhage in the parts emptied of blood by the bandage. Mr. Pemberton's case had, of course, no special bearing upon this form of treatment; the same result would have followed occlusion of the main artery by other means; for with the arterial flow obstructed, interference with the venous return is one of the best recognised causes of gangrene. This subject, then, remains much where it was. The table of cases circulated may stimulate inquiry, and the pathology of the method which Mr. Gould has briefly discussed before, he has now more fully elucidated.

Mr. Spencer Wells opened the discussion on recent advances in the surgical treatment of intra-peritoneal tumours, and the points upon which he laid stress were the necessity for union of the edges, or rather surfaces, of the cut peritoneum, so as to ensure immediate union; the great value of pressure forceps for the control of hæmorrhage; and the fact that the use of antiseptics has done away with the need for drainage; during the last three years he had not used drainage once, though he thought two or three patients had died who might have been saved by it. Dr. Marion Sims strongly advocated drainage, though admitting it often led to ventral hernia; while Drs. Keith, Thornton, and Martin advocated it for severe operations only, and in cases of cysts with putrid contents. In reference to removal of uterine tumours, in addition to the citation of interesting cases by several speakers, the main outcome of the discussion was that the operation was rendered safer and attended with less loss of blood when the tumour could be raised out of the wound and enveloped in an elastic bandage; the careful closure of both the uterine and the peritoneal cavities, where both were opened, was insisted on; Mr. Thornton pointed out the great difficulty of rendering the uterine cavity aseptic; and the use of the elastic ligature for the pedicle was advocated. The antiseptic method had many warm supporters, but Dr. Keith stated that with it, after having a succession of eighty successful cases, he had five deaths in the next twenty-five cases, two from carbolic poisoning and one from septicæmia, and two from acute nephritis. On account of this mortality, and of the very frequent high temperature the evening after the operation, he had abandoned the spray in all operations, and had had one death out of twenty-seven ovariotomies without the antiseptic treatment. Professor Czerny related a successful case of excision of the pylorus; and Mr. Tait referred to his experience in abdominal surgery to show how the domain for surgical interference is extending to pelvic abscesses, &c. Of all the many surgical improvements of the last thirty years, there is none that can take a higher rank than this, and it appears that we have not yet learnt the full extent of its value, or appreciated the degree to which the peritoneal cavity can be interfered with without a disproportionate danger.

The question of surgical interference with the kidney was raised and discussed by Czerny, Baker, Barker, Barwell, Lucas, Martin, and Langenbeck. All had cases of nephrotomy, nephro-lithotomy or nephrectomy to relate, and Dr. Martin stated that he had seven times removed a painful floating kidney, and once a malignant tumour of the kidney, with five recoveries in all. To aid the diagnosis of renal conditions, Mr. Barker suggested that in stone the kidney should be exposed from the loin and carefully explored with a needle, and the President considered the suggestion valuable. The difficulty of deciding whether pyelitis or suppurating sacculated kidney is unilateral or bilateral is a strong argument against performing such a severe operation as nephrectomy without being sure of removing the entire disease, and until diagnosis has advanced the application of this treatment it must be very limited. The excellent cases recorded show the feasibility of the three operations named above, and, as far as they may be taken as a guide, prove that nephrectomy is not more dangerous to life than nephro-lithotomy and nephrotomy. Three methods of removal of the kidney were described, the lumbar, the intra-peritoneal, and the abdominal extra-peritoneal; the first would seem to be at once the most difficult and the safest, but Dr. Martin states that in removal of the kidney from the front of the belly, the peritoneum falls together so completely that it does not even require stitching. A decision on this point must follow the more accurate diagnosis of the precise conditions in which removal of one of the kidneys is justifiable; it is on this point that most light is required at present. No detailed information was given of the physiological effects of removal of one kidney.

The next discussion was raised on the recent advances in the methods of extracting stone from the bladder of the male, and was opened by Sir H. Thompson in a very able paper, continued by Professor Bigelow, and joined in by most of the leading authorities on this subject. The

question naturally divides itself into two—lithotomy and lithotrity. As to the former, the only novelty proposed was the use of the thermo-cautery instead of the knife in both perineal and, especially, suprapubic lithotomy, with the view of avoiding hæmorrhage and having a dry, non-absorbent wound. The objections to this plan are so obvious—viz., the formation of a deep slough, the inability to follow the exact steps of the operation and regulate the amount of damage—that they only require to be stated. More valuable were Mr. Teale's remarks on the improved results of lithotomy in late years owing to the avoidance of septic diseases, and the greater deliberation in the extraction of the stone—a point most important always to bear in mind, for in this case rapid operating is not only uncalled for, but mischievous. Dr. G. Buchanan advocated the use of the rectangular staff, which makes the operation easier and safer; but Professor Spence, whilst praising it, pointed out that in cases of very large prostates its point may not reach the bladder, and so lead to trouble. Sir H. Thompson spoke hopefully of the plan of crushing a very large calculus *in situ* by powerful forceps before opening the bladder, and recommended a combination of lithotrity with an opening into the membranous urethra from the perineum in cases of greatly enlarged prostate with irritable bladder and urethra.

As regards lithotrity, it was admitted by all that Prof. Bigelow had not only introduced a new principle into the operation by insisting on the axiom that the bladder was more tolerant of instruments than of sharp fragments of stone, but that his practice was also an improvement. Out of ninety-one cases operated on after this plan by Sir H. Thompson, eighty-eight recovered. Beyond this however, there was no agreement. Bigelow insists on the value of large instruments even for small and moderate-sized stones, and that his operation is suited for all cases of lithotrity. Sir H. Thompson is as earnest in contending that the instruments should be proportionate to the size and hardness of the stone, and never larger than necessary; while Mr. B. Hill thinks that there are many cases in which the old operation is better, the danger of injuring the deeper parts of the urethra in men of middle age being important. Mr. Teevan spoke of the entire absence of chronic cystitis after Bigelow's operation. As to whether the new operation has enlarged the field of lithotrity, Mr. Coulson spoke of having removed four ounces of stone at one sitting. Sir H. Thompson showed the débris of large stones thus removed, and the results of Bigelow's practice are well known; but Mr. Teale and Dr. Buchanan concurred in the belief that except to the practised lithotritist such was not the case, and that the lithotrite could not be used with safety for a larger stone now than formerly, and that whenever in doubt it was safer to lithotomise. Professor Bigelow showed his latest improvements in the lithotrite—a new simple catch, and in the exhausting bottle, the chief features of which are a hose attached to the top of the bottle to admit water or give exit to air during the operation, and a new valve and trap at the junction of the catheter and exhausting tube to catch all the dust and fragments that in the ordinary way pass to and fro in the tube, and so delay the evacuation. This is no doubt a direction in which improvement is needed, but it is a question whether this trap or Mr. Clover's original simple contrivance be the better for the purpose. There is much in Mr. B. Browne's observation of the great desirability of keeping surgical apparatus as free from complications as possible. Dr. Bigelow, at the close of the meeting, gave a very interesting demonstration of the use of his apparatus, and it must have been gratifying to him to find that among the differences of opinion on other points all were agreed in ascribing to him full credit of his principle of practice, both for its novelty and its value.

To M. Ollier was allotted the task of introducing the subject of Excision of Joints, and he laid stress on the value of the subperiosteal plan, and stated that when carried out even the cartilage might be regenerated in the new joint; he preferred early to late excision. M. Rocher of Berne followed with his statistics of sixty-four cases of excision with six deaths: he has recently tried to obtain a movable knee-joint after excision. Mr. Newman related a very excellent case where drainage of the joint was successful in acute arthritis subsequent to disease of the head of the tibia. But the real question at issue was as to the desirability of the operation early or late in the disease. Mr. Bryant, Mr. Heath, and Mr. Marsh strongly advocated a limited use of the operation; they regard the disease as local, and as locally curable, and therefore consider excision out of place except after all other methods have failed and in advanced disease. On the other hand, all were agreed that in such cases the results of excision have been most disheartening; and for this reason and also because of the shortening of the total period of pain and illness, and of the connexion of the local disease with general disease, others, Messrs. Croft, Teale, Treves, and Barton, recommend an early or very early resort to the operation. The arguments urged on each side are no doubt well worthy of full consideration; it is, however, for those who operate to demonstrate the necessity for the practice. It is impossible not to see that those who urge operation very early will be led to operate when not necessary, as errors in diagnosis will occur to all; and further, such a practice will tend to draw attention from the main requisite—*a mode of cure of the disease*. Perhaps hardly sufficient stress was laid upon the excellent results given by free incision into chronically diseased joints. We should mention that Dr. Sayre showed drawings of a case of singularly perfect reformation of the hip-joint after excision; new cartilage was present.

The most important and best sustained of all the discussions took place on Monday morning last, on the causes of failure in obtaining primary union in operation wounds, and on the methods best calculated to secure it. Mr. Savory opened it in a very eloquent and philosophic speech, pointing out that primary union was most likely to occur when fresh surfaces are brought together in their natural state, and maintained so without disturbance. The chief cause of failure he believed to be "meddlesome surgery," and essential principles were rest, cleanliness, and asepsis, which admit of almost endless variation in detail. He asked, when a wound was septic or aseptic, was fever, or pus, or only smell to be the criterion? Defending his Cork statistics, he claimed that they had not been surpassed, though equally good results were obtained by many different plans of treatment, the actual processes of healing being primarily independent of them all. Mr. S. Gamgee followed, and showed the antiseptic absorbent cotton pads he has used with success. As one proof of their antiseptic power, he showed a piece of meat which had been lying between two of them, but exposed to the air for fifteen seconds every day, and was perfectly sweet at the end of twelve days. The principles he laid stress upon were perfect dryness of the wound, thus removing one of the conditions of putrefaction, rest and infrequent change of dressing, circular compression, and suitable position, with the use of antiseptics as an important adjunct. Dr. Humphry spoke of the importance of a clean-cut wound in healthy tissues, very accurate apposition of the edges and surfaces with very careful closure of all bleeding vessels. The air acting injuriously both as a direct depressant of the vitality of the tissues, and through agents floating in it, it was only wise to use some form of antiseptic to purify the air. For Professor Verneuil, the disposition of the wound and of the patient are *the* great factors in the healing process. Professor Esmarch's statistics of his own practice are so remarkable, that they must be given in full. In 398 great operations (six deaths) 85 per cent. of the cases cured healed by first intention with one dressing, in 15 per cent. the dressing was renewed; and this ratio had improved of late. There were 146 excisions of large tumours, 40 excisions of mamma and axillary glands, 14 castrations, with one death from pericarditis and old syphilis, one from apoplexy, one from fatty heart. Of 51 major amputations (thigh 18, leg 27, arm 5, forearm 1), one died from shock and hæmorrhage, and one from delirium tremens. There were 61 resections; 11 exarticulations; 26 necrotomies; 13 nerve-stretchings, one for tetanus, which was fatal; 8 hernias; 21 large cold abscesses; 12 large wounds; 49 compound fractures. The cases were all dressed with pads soaked in iodoform and absolute alcohol (10 per cent.), fastened on by an iodoform bandage, over that a large pillow of jute and gauze, a moist bandage, and over all an elastic bandage. Professor Volkmann thought that all suppuration is septic, and that personal peculiarity in the main had nothing to do with the healing of a wound. Other evidence was offered and opinions given which only corroborated the above, and supported various ways of carrying out a dry dressing, with rest and compression combined with antiseptics, as advocated by Mr. Gamgee, whose labours in this direction have perhaps not been sufficiently recognised. Professor Lister wound up the discussion. In reference to Dr. Keith's experience, he stated that he had dissuaded him from using

antiseptics in the first instance; in such an operation there is abundant room for effusion and means of absorption, while carbolic acid both increases the one and lessens the other; but on the whole he thought antiseptic ovariotomy had been successful. Referring to the experiments detailed at Cambridge which showed that diluted septic poison may be added without effect to blood serum, though not to diluted blood serum, he further recited more recent experiments which showed that blood-clot in the body is still less favourable to the development of organisms. He expressed his bel ıf that it is "solid bits of dirt" that are the deleterious agents, and that possibly too much attention has been paid to the finest particles floating in the air. His own results, however, were so good that he shrank from giving up any one of the details of the treatment by which he obtained them, although he quite admitted that he too might at some future time be able to say "*fort mit dem spray*"; at present he could not accept irrigation as a substitute for the spray. He denied that there was any ground for the charge that he disregarded the general condıion of the patient or his hygienic surroundings. Were this true, his results being so good as admitted by all, what a strong argument it afforded to the efficacy of his merely local treatment! There was no time for Professor Lister to touch upon the many points raised by previous speakers. If we were to attempt to give in a few words the general impression produced by the debate, we should say that the value of antiseptics was clearly recognised by all, that it was made evident that Professor Lister's aim may be attained by means other and simpler than his; that in particular the value of the spray is considered very doubtful; but more than all, that antiseptic treatment only answers one of the requirements of wound treatment, and that he only is a scientific surgeon who enlarges his views and practice to embrace all.

The final discussion was on the modifications of syphilis in the tuberculous, gouty, and other constitutions, and was opened by M. Verneuil, who maintained that scrofula attracts syphilis to the organs it most commonly itself affects, and is apt to cause suppuration, but to remove the element of pain. Tuberculosis makes some tertiary syphilitic manifestations persist indefinitely. Mr. Hutchinson had never seen a hybrid of syphilis and struma or tubercle or gout, nor had he been able to trace any modification of syphilis by these diseases, although the variations met with were no doubt to be explained by the idiosyncrasies of the patients. The antecedents of a patient did not enable him to predicate anything of the course of the acquired disease. In gouty patients he had often noticed severe bone and joint pains. He thought, however, that a severe form of ulceration of the face closely resembling lupus was to be accounted for by the influence of struma on inherited syphilis. Dr. Bennett knew of no modifications of rickety, gouty, or other bone changes that could be traced to syphilis, and he referred to the absence of information on the syphilitic changes in joints. Dr. Drysdale spoke to the existence of syphilitic phthisis from gummatous change. But so far as the discussion may be taken as a criterion of professional knowledge no satisfactory evidence of syphilitic hybridism, or of marked modification of syphilis by any other dyscrasia, has been demonstrated. We hope to notice some of the separate papers read in our next week's issue.

SECTION VIII.—MENTAL DISEASES.

The work done in this section has been satisfactory, as well from the interest and ability of the communications as from the keenness of the discussions following their reading.

If the subjects brought forward may be taken as indicative of the current lines of observation in this specialty, it becomes interesting to compare the number of the pathological and clinical investigations with the almost entire absence of those of a therapeutic or preventive character. This corresponds to the opinion expressed by Dr. Hack Tuke in his address to the Medico-Psychological Association, that progress in this direction had been principally made by clearing away former errors rather than by developing new modes of treatment.

The importance of this specialty was dwelt on by Dr. Lockhart Robertson in his opening address in the statement that there are in England alone 71,000 persons whom the law recognises as of unsound mind, being one in 350 of the population. These figures would appear to be a strong plea in support of Dr. Clouston's advocacy, in a very able paper, for the extension of the teaching of mental diseases to students of medicine.

In the animated discussion on this paper, the consensus of opinion pointed to the necessity for a greater use of the county asylums for the purpose of instruction; that in this way only could opportunities be afforded to every student to enable each to obtain such an acquaintance with insanity as would prepare him to answer a question on this subject at his examination by the licensing bodies; and that a special course of study should be demanded of all medical men, who were empowered to sign certificates of insanity.

Dr. Bucknill, in his paper on "Testamentary Incapacity," specially discussed the recent decision in Banks *v.* Goodfellow, wherein the Court of Queen's Bench found a person capable of making a will, who was admittedly the subject of delusions of suspicion and persecution.

Dr. Maudsley pointed out that this was a sequence of similar American decisions, and commended the recognition of the ability of some cases of hallucinatory insanity to execute a will. In this opinion he was supported by Drs. Wood and Orange.

Dr. Motet of Paris alluded to the difficulty of deciding this question in cases of coarse brain disease with mental enfeeblement, and Dr. Bucknill quoted the case of a patient in a private asylum who had lately, under his advice, executed a will with appropriate legal precautions.

The subject of Hypnotism was introduced by Professor Tamburini, who has without doubt taken the truly scientific method of examining in the most exhaustive manner the condition of the circulation, respiration, and muscular irritability, as well as the reactions of the senses during the hypnotic state. By this method only can deception and imposition be eliminated from this matter and the subject brought to have a definite scientific value.

Dr. A. Foville, in an interesting paper on Megalomania, established two forms of exalted delusion: the first fleeting, inconsistent, and generalised, occurring in general paralysis, transiently in mania, in organic brain disease, and in alcoholism—in all these conditions being probably related to hyperæmia of the cortex of the brain. The second variety is systematic and permanent, chronic in evolution and incurable; usually associated with hallucinations, with delusions of persecution and exalted change of personality, and being especially associated with illegitimacy.

Professor Tamburini, in his paper entitled "Cerebral Localisation and Hallucinations," stated that Panizza, in 1856, recognised the existence of a sensory centre (of sight) in the cortex cerebri, but that the full development of the discovery was due to Ferrier. He endeavoured to prove that hallucinations are caused by disease of the sensory cortical centres.

Dr. Ferrier, in alluding to the distinct regions of special sense in the cortex cerebri, proved by his experiments before the present Congress, suggested that hallucinations should be regarded as sensory convulsions, analogous to those occurring in motor centres.

Dr. Alex. Robertson, in his communication on unilateral hallucinations, relegated their origin to the sensory centres, which, however, he did not at present consider to be satisfactorily mapped out.

Dr. Fournier attempted to prove that hallucinations differed only from ordinary acts of memory in being involuntarily and unconsciously originated. An abnormal stimulus thus arising in the cortex was transmitted to the optic thalami, and by reawaking of the activity of these organs gave rise to a false impression.

This theory met with very general opposition.

Dr. Fournier suggested the classification of hallucinations into those connected with: (1) The sensations of organic life; (2) the sensations connected with reproduction; (3) the sensations of the special senses; (4) the sensations produced by the voluntary activity of our organs, as by speech.

Dr. Motet's paper on Moral Traumatism in the Alcoholic had a medico-legal as well as a clinical interest in directing attention to the possible development of transient mania (not of the type of delirium tremens, but more nearly resembling the maniacal outbreaks after epilepsy) as a result of mental shock in a person of alcoholic habits.

Mental stupor was discussed in a valuable paper from Dr. Hack Tuke. He described three cases in which this condition was associated with catalepsy, and expressed the opinion that on a close examination most of these cases would be found to be due to melancholic absorption, and

that in comparatively few was the mind an utter blank. He proposed to abolish the use of the term "acute dementia," using the term "mental stupor" instead, and adding the words "with melancholia" when this was associated.

Dr. Foville alluded to the fact that the term "acute dementia" was no longer used in France, and that only one condition was recognised. On the other hand, it was urged that there was a distinct difference between anergic stupor and stupor with melancholia, although in some cases the distinction was difficult, owing to the conditions closely approximating in the later stages of disorder.

Epilepsy was the subject of a demonstration by Dr. Lasègue, who described true epilepsy as being due to malformation of the skull, either idiopathic or traumatic; all other forms as being spurious or epileptoid—i.e., those due to cerebral traumatism, organic lesion, and toxic or hysteric conditions. The true epilepsy (excluding the traumatic) dependent on malformation of the skull, follows only on its ossification, and invariably develops between the age of fourteen and eighteen years. The head is found on examination and measurement to be asymmetrical either laterally or antero-posteriorly, and this is accompanied by asymmetry of the face, the mouth especially being askew (strabismus buccalis). This form is never hereditary, nor is it transmissible to offspring. The first attack of epilepsy is identical in character with all succeeding attacks, therein differing markedly from the epileptoid forms. The attacks of epilepsy occur between 4 and 7 A.M., during the passage from the sleeping to the waking state. These patients are epileptics in everything. Dr. Motet stated that Dr. Lasègue's views were generally accepted in Paris, but no discussion in confirmation or opposition followed.

Satisfaction must be expressed that the relation of insanity to other diseases would appear to be specially attracting the attention of alienist physicians. The relations of insanity to Paralysis Agitans was treated by Dr. Ball, to Exophthalmic Goitre by Dr. Savage, and to Gout by Dr. Rayner.

From Dr. Ball's paper and the discussion thereon, in which several additional cases were quoted, the conclusion may be drawn that insanity with paralysis agitans is more common than the limited number of recorded cases would appear to indicate; Dr. Mercier expressing the opinion that the mental defect, being negative, was often overlooked.

Exophthalmic Goitre was associated with insanity in three cases reported by Dr. Savage, who draws attention to the fact that symptoms of this disease may occur in general paralysis of the insane, and gave a case in which this diseased state recurred during attacks of mental disorder, being absent in the intervals, this case being markedly improved by hyoscyamine.

Dr. Rayner quoted cases of insanity from retrocedent and latent gout, with others in which it was only an associated cause. The importance of the recognition of its presence with regard to prognosis and treatment was dwelt on, and a parallel drawn with the insanity resulting from lead and alcoholic blood-poisoning.

Dr. Savage has rendered good service to pathology in drawing attention to changes produced in nervous tissues prepared for microscopic section by hardening in spirit. These changes, he showed, are not to be distinguished from the so-called miliary degeneration. He also exhibited microscopic sections containing colloid and amyloid bodies, which were probably due to the mode of preparation. Dr. Benedikt expressed the opinion that the miliary bodies were normal, and not pathological. Dr. Holler of Vienna communicated a paper on a Method of Preparing Large Sections of Human Brains, of which he exhibited specimens. The process is a development of Sankey's method, large slices being stained in carmine-ammonia, placed in Canada balsam, dried on object glasses, and pared with tenotomy knives to the required thinness. These sections would be useful for anatomical purposes, but for histological and pathological observation it may be objected that they do not take a uniform plane.

Dr. Benedikt exhibited a series of fifty brains of criminals, in which he discovered, as a marked characteristic, a general coalescence of the typical fissures. This deviation from the normal type he termed "atypic," the same condition being present in hereditary insanity, epilepsy, and other low types of the human brain. Dr. Shuttleworth gave an interesting *résumé* of the cranial characteristics of idiocy, and Dr. Fletcher Beach exhibited brains of cretinoid and microcephalic cases, pointing out the close relation between the mental characteristics and the development of the convolutions. He quoted the observation he had made in common with Dr. Hilton Fagge in cretinoid idiocy that the thyroid body was absent, and was apparently supplemented by fatty growths in the posterior triangles of the neck. His microscopical sections showed the defect of processes in the motor cells of the brains of idiots.

Communications by Dr. C. H. Hughes on moral insanity and by Dr. Wynter Blyth on chemical investigation were taken as read in the absence of the authors.

SECTION XI.—DISEASES OF THE SKIN.

The meeting together of so many dermatologists at the International Medical Congress of 1881, under the presidency of the President of the Royal College of Surgeons of England, undoubtedly is a notable fact in connexion with this branch of medicine, and has unquestionably been of considerable value in furtherance of the study of diseases of the skin. The chief advantages arising from the meeting may be summed up shortly as follows: Beyond the manifest value in the personal intercommunication of so many dermatologists from all parts of Europe and from America, and in the interchange of views and suggestions, the meeting has afforded opportunities for the observation of the methods of treatment and for the inspection of rare living cases in the different London cliniques, and for seeing and comparing together the many interesting collections of drawings and representations of skin diseases from private and public collections. Further, besides the addition made to our knowledge by the several very interesting papers read in the section, and in the discussions to which they gave rise, we shall probably express the general feeling when we say that the greatest value is to be attached to the exhibition of the many living specimens shown at the morning séances in the museum and in the section on Saturday morning. So much was this the case that there was a pretty general feeling of regret that more time was not available for seeing additional cases. Of the many diseases under consideration leprosy claimed a large share of notice. Four living examples were shown—two adults by Mr. Hutchinson, and two boys aged respectively eight and nine years by Dr. Radcliffe Crocker. All these had contracted the disease abroad, and the chief points of interest were the gradual dying out of the disease in an elderly woman, the primary outbreak in one of the boys six months after arrival in this country, and the failure of nerve-stretching to produce benefit in one case. Many wax models, photographs, and portraits of leprosy were on view in the museum from the collection of Dr. E. de Wahl of Dorpat, and Guy's Hospital, &c., and an interesting series of specimens were shown from the museum of the Royal College of Surgeons of Ireland, illustrating atrophy of the bones from interstitial absorption, the alteration in the nerves, and atrophy of the testes. Dr. Abraham also exhibited under the microscope excellent specimens showing degeneration of the glandular epithelium of the testes by the intertubular small-celled growth, hypertrophy of the sebaceous glands in the neighbourhood of a leprous papule (leproma), the thickening of the walls of the sweat-gland, the accumulation of the small-celled growth round the vessels in an anæsthetic macule, with subsequent fibroid degeneration and obliteration of the glands, the growth in nerves, giant cells undergoing vacuolation and fatty degeneration, the zoogloea masses of Hansen and micro-organisms, and the thickening and infiltration of the coats of an artery as it entered a nodule. Mr. Malcolm Morris also showed some interesting specimens.

The preparations of ainhum and mycetoma were observed with great interest by many foreign visitors who had not previously had an opportunity of seeing specimens. Lupus erythematosus was another disease which excited great attention, and all forms of lupus were copiously illustrated in the museum by Guy's Hospital models and Mr. Hutchinson's beautiful collection of drawings. Many living specimens also were exhibited, illustrating the several aspects of the disease, and the sites it selects for attack. Noticeable amongst these were two cases by Mr. Morrant Baker; three cases by Mr. Malcolm Morris, one showing very extensive distribution, and with difficulty, if at all, distinguishable from some forms of lupus vulgaris, and another illustrating the early stage named originally by Hebra seborrhœa congestiva; and several by Mr. Startin. Mr. Hutchinson also demonstrated the occurrence of lupus

in mucous membranes, and this point was further illustrated on the palate of one of Mr. Morris's cases. An exciting and interesting discussion on this disease was opened in the section by Profes-or Kaposi and Dr. Th. Veiel, in which the President, Drs. Vidal, Unna Schimmer, and Thin took part, and which turned principally on the distinct nature of lupus vulgaris and L. erythematosus, and on the excessively difficult histological and clinical points as to whether the latter was a new growth or an inflammation, its discoid and aggregate varieties as described by Kaposi, and its local or constitutional etiology. Professor Kaposi, supported by Mr. Wilson, is at variance in a great measure with many English observers, who hold the views expressed by Mr. Hutchinson. Altogether this meeting has been of the greatest service, if in no other point, at least in enabling all to understand the meaning of the terms applied to different phases of lupus, and what the questions at issue really are.

A third disease on which additional light was thrown was xanthelasma. Dr. Crocker showed a case of X. palpebrarum in a man suffering from diabetes insipidus. Mr. Startin exhibited a child five years old, apparently in perfect health, and without hepatic disease, in whom aggregated xanthelasma papules had existed symmetrically in the cleft of the nates, in the popliteal spaces, and on the elbows. This case closely corresponded with a unique one recorded by Dr. Colcott Fox in THE LANCET. Thirdly, Mr. Gaskoin showed a most interesting case in a healthy-looking man with symmetrical X. papulatum of the elbows and knees and backs of hands and forearms. This curious affection was illustrated in the museum by the Guy's Hospital and Mr. Hutchinson's drawings.

In this connexion we may mention that great interest was excited by the exhibition of five cases of urticaria pigmentosa by Dr. Stephen Mackenzie (2), Dr. Colcott Fox (1), and Dr. Cavafy (1), all in children, and by Dr. Liveing in an adult. Scleroderma, in its rare, diffused, and its commoner circumscribed forms (morphœa), was well illustrated. No less than three cases of the former were shown by Mr. Gaskoin, Dr. Colcott Fox, and Dr. Stowers, who read an account of his very chronic case to the section. Dr. Fox also showed a man suffering from the most widespread form of morphœa, which involved almost the whole of the trunk and limbs, but, curiously, not the face, as in the diffuse scleroderma cases. Mr. Baker exhibited two cases of morphœa, one involving the forehead and one the cheek; and it is interesting to notice in some of the beautiful series of drawings and models belonging to Mr. Hutchinson and Guy's Hospital the distribution in relation to the nerve supply, and more especially in its correspondence in this respect with herpes ophthalmicus. In connexion with this point we noticed the transverse distribution of the patches on the leg in the Guy's Hospital model of linear atrophy. Of great interest, especially to English observers, were the cases of prurigo exhibited by Mr. Morrant Baker, because this disease has, since Hebra's description, been considered of exceptional rarity in this country, and hence these cases were examined and Mr. Baker's paper listened to with much attention. It would appear that this disease is not so rare as was imagined, and the profession is much indebted to Mr. Baker for his work on this subject. We may mention as attracting attention Mr. Hutchinson's collection of drawings illustrating bromide and iodide of potassium eruptions, and the same surgeon's portraits of rodent ulcer, of which Mr. Marsden also had drawings, which could be compared with the illustrations present of ordinary epithelioma. All the rodent ulcers portrayed were on the upper two-thirds of the face, except one on the back; and another point to be noticed is that one took on a fungating character, though otherwise typical. In the museum there were several portraits of the disease of the tongue known as ichthyosis or psoriasis linguæ, one by Mr. Hayward having recurred as epithelioma after two operations, and another from the St. John's Hospital collection being associated with psoriasis of the left leg. The rare supervention of gangrene in various inflammatory eruptions was well illustrated, Mr. Hutchinson showing portraits of varicella gangrenosa, vaccinia gangrenosa, herpes gangrenosa, and gangrene of a patch of bromide eruption; Mr. William Stokes, gangrenous patches following vaccination, though not of the primary sores; and two Guy's Hospital models, labelled rupia escharotica, representing probably varicella gangrenosa and pemphigus gangrenosa respectively. There remain for special mention a living example of leucoderma exhibited by Mr. Baker, proving conclusively the concurrence of both deposition and removal of pigment in this disease; another, shown by Dr. Crocker, to illustrate the pigmentation left by the eruption of lichen planus; by the same physician, a living specimen of a miliary papular syphilide, closely simulating lichen scrofulosorum, which Professor Kaposi stated he had seen in an adult; a patient with chronic eczema mammæ (malignant papillary dermatitis, Thin), by Dr. Colcott Fox, which was illustrated by two Middlesex Hospital specimens in the museum and by a portrait shown by Dr. Macnaughton Jones, in all of which cancer had supervened; two living specimens of elephantiasis arabum, affecting the hand and scrotum respectively, brought by Mr. Morrant Baker; a very curious affection of the scalp, looking very much like keloid, and enclosing in the growth brush-like bundles of hairs; lastly, two living examples illustrating affections of the hair, in one of which, shown by Mr. Hutchinson, the hair of a little girl had grown again quite white after shedding, following a severe attack of pityriasis rubra (there was also general loss of pigment), and in the other, a case of alopecia areata, shown by Dr. Sangster, in which the hair turned white in tufts before falling.

Space does not permit us to record the various discussions, in many instances lengthy, which took place upon the papers which were read. We shall therefore content ourselves with the briefest possible notice. Dr. Vidal of Paris read a paper upon Parasitic Pityriasis Circinata and Marginata, in which he described a new parasite, the Microsporon Anomæon, and the clinical characters of the disease produced by it, pointing out the differential diagnosis from similar affections.

Dr. Angelucci read a paper on the etiology of the scales of psoriasis, eczema papulosum, and the horny septa between the lobules of molluscum contagiosum, pointing out the existence of a fungus which he had detected as the cause of the diseases above mentioned.

Dr. Alfred Sangster recorded the sequel of a case he had read at the Clinical Society in 1878 as one of Abortive Herpes. Its subsequent history had thrown doubt upon the genuineness of the eruption as due to disease. The author adduced facts to show that the onus of proof rested with those who believed in the artificial production of the eruption. He thought the case (if genuine) bore more resemblance to cases the President (Mr. Erasmus Wilson) had described as "Neurotic Excoriation." The patient was shown.

Dr. Eugène Verrier of Paris read a paper on the Influence of Climate, Difference of Race, and Mode of Life on the Development and Character of Parasitic Diseases of the Hairy Scalp.

Dr. Gustav Behrend of Berlin read an interesting paper on Vaccinal Eruptions, having devoted considerable attention to the subject in his capacity of public vaccinator. The author reported seven cases: five (pustular, herpetic, erythematous) appeared in the course of three days after vaccination; one, resembling measles, appeared on the eighth day. These eruptions are not caused by any specific action of vaccine lymph, similar ones being produced by drugs and articles of food. Any blood-change, the author considered, may give rise to eruption (pyæmia, septicæmia), but predisposition was a necessary factor.

Dr. Rasori of Rome read a paper on General Inflammation of the Sweat-glands following the prolonged internal administration of Pilocarpine. The paper included an account of a case, together with a review of the writings of authors on inflammation of the sweat-glands, and remarks upon the etiology of the disease.

Mr. Morrant Baker read a paper on Prurigo or Eczematous Prurigo, or Pruriginous Eczema. Having shown such cases to the section on the clinical day, the author pointed out the frequent occurrence of a disease in this country usually confounded with eczema, but having characters of its own identifying it with the true prurigo (prurigo of Hebra).

Dr. Liveing read a paper on the Causes of Alopecia Areata. Having discussed the parasitic hypothesis, the author gave his reasons for supporting the neurotic origin of the disease, discussing—(1) The constitution of those liable to it; (2) functional nerve disturbances preceding and following loss of hair; (3) action of blistering fluid on the skin affected; (4) regions liable to the disease; (5) changes in the skin and hair; (6) allied diseases.

Professor Ernst Schwimmer read a paper on Leukoplakia buccalis, giving the name to an idiopathic affection of the mucous membrane of the mouth and tongue to dis-

tinguish it from symptomatic alterations occurring in the course of other diseases, especially syphilis. Such patches have been described as ichthyosis, tylosis, keratosis, psoriasis. The author described the condition and discussed its etiology and treatment.

Dr. Walter Smith of Dublin reported at length a case of the occurrence of Dipterous Larvæ beneath the skin. No cause could be assigned. Competent authority had pronounced the larvæ as belonging to a dipterous insect.

Dr. Unna of Hamburg read a critical and historical essay on the Sweat Secretion. In the course of his remarks the author pointed out that neither pathology nor physiology had shown that the sweat that exudes from the sweat-pores comes exclusively from the sweat-gland coil. The series of gradations between the ordinary sweat-glands and the anal, axillary, and ceruminous glands was alluded to. The watery elements of the sweat must be largely derived from the bloodvessels of the papillary layer, perhaps also from the vessels surrounding the duct and from the rete mucosum. We are thus led to a wider view of the sweat secretion, and to the idea of a division of labour amongst the different sweat-producing organs.

Dr. Alfred Sangster gave a short account of the histology of a curious Papillary Tumour of the Scalp. The paper was illustrated by specimens and drawings.

Dr. Herbert Stowers read a paper on a most interesting and rare case of Scleroderma diffusa. The author described most ably the various phenomena of the case, such as the structural changes of the skin, the fixity of the joints, and shortening of bones. The paper was abundantly illustrated, and the patient was shown to the section on the clinical day.

Dr. George Thin read a paper on a case of Congenital Abnormality in the Hair-production on the Scalp. The hairs were described as rough and crisp to the touch, varying in length from a fraction of an inch to an inch in length, breaking off in numbers when the scalp is firmly rubbed.

Dr. Vidal introduced, by permission, a paper on Lymph-adenoma of the Skin, and the President concluded with a short but remarkable paper on Dermato Therapœia.

Before the section separated, Dr. Bulkley of New York proposed that a committee be appointed, composed of members representing different countries, to simplify and amend the nomenclature of dermatology, and afterwards to agree upon a classification of cutaneous diseases. The proposal was seconded by Dr. Stephen Mackenzie, and carried by acclamation.

SECTION XIII.—STATE MEDICINE.

When, after the general meeting on Wednesday, the 3rd August, the sections assembled in their respective rooms, the chair in the thirteenth section, or that of State Medicine, was taken by its president, Mr. John Simon, C.B. The President delivered an able and interesting address, in which, after referring to the objects comprised under the term State Medicine, and the remarkable progress made of late years in all questions of public health, he discussed at some length the difficulties thrown in its way by the ill-judged legislation known under the title of the Cruelty to Animals Act, which he described as a heavy cloud overhanging the study of scientific medicine in England, and likely to be of specially disastrous effect on the progress of preventive medicine.

The preliminary arrangements and the address occupied so much time that the commencement of the reading of the papers was postponed till Thursday morning. The first question then brought under the consideration of the Section was the mode of the propagation of yellow fever and cholera, and the means best adapted to prevent their diffusion either from one country to another or within any country. Dr. Billings communicated the results of the experience of late years in the United States. As regards yellow fever, he considered it as a specific disease capable of communication from person to person, and through the medium of clothing, &c. Inspector-General Lawson, on the contrary, in stating the results of his experience on the West Coast of Africa and in the West Indies, attributed its origin to local causes, and did not believe it capable of transmission by means of clothes or other porous materials. Both these views found supporters in the discussion which followed. Dr. Billings was strongly in favour of quarantine, but did not include under that term detention of vessels on board of which cases had occurred for a longer period than might be necessary for the thorough cleansing of the vessel and the disinfecting of all articles of clothing; and he suggested the necessity for an international exchange of information when any outbreak of fever or cholera occurred. Attention was called by Dr. Fauvel of Paris to the very different climatic conditions of the various countries in which yellow fever occurs, and the consequent necessity for leaving to each country the arrangement of such details as it may consider necessary for the limitation of the disease. A paper was afterwards read in abstract by Dr. Christie on the measures by which to prevent the diffusion of Dengue. The author gave an account of several epidemics of this disease, and believed the only mode of prevention to consist in improved sanitary conditions.

The meeting of Friday morning was occupied with the question of the best means of preventing the diffusion of Syphilis. Several abstracts of papers on the subject were read, which led to a long, warm, but not not very profitable discussion of the principles and operation of the Contagious Diseases Acts. This was going on when the hour for adjournment was reached, and the discussion was closed still unfinished. The afternoon sitting was devoted to the question of Home Contagia, as manifested by enteric fever, scarlet fever, measles, whooping-cough, diphtheria, &c. Professor de Chaumont read an abstract of an excellent paper on the principles to be observed in attempting to prevent the diffusion of disease, and was followed by an account by Dr. Gilbert of an outbreak of typhoid fever in Havre, apparently caused by defective drainage and sewerage arrangements; one by Dr. Stopford Taylor on the importation of infectious disease into Liverpool, its diffusion, and the means of prevention; and an abstract of a paper by Dr. Page on the prevention of the spread of scarlet fever, especially with reference to the period of incubation, the period during which the power of infection probably continues, and during which, consequently, isolation ought to be enforced, and the measures of disinfection and purification of persons, houses, and clothing requisite after the occurrence of cases of the disease. The discussion on these important points was postponed, owing to the want of time after the abstracts were read.

On Saturday the subject under consideration was the influence of various articles of food—not including water—in spreading parasitic, zymotic, tubercular, and other diseases. The probable transmission of tubercular disease to man from animals, through the medium of milk and meat, was brought forward by Dr. Creighton of Cambridge; the occurrence of an acute specific disease from eating pork infected with a species of bacillus, by Drs. Ballard and Klein; and abstracts on the diffusion of diseases by various articles of food were read by Mr. Hart, Dr. Vacher, and Dr. Hogg; while Dr. Carpenter briefly brought to notice the freedom from disease-producing qualities of food, either animal or vegetable, raised from sewage-irrigated fields. These important subjects gave rise to very little discussion—a result, we fear, of the various more interesting, though perhaps less important, social engagements, which had been made for the purpose of giving pleasure to our foreign and country friends.

The meeting on Monday was opened with a paper by Dr. Acland, on International Conditions of Admissibility to Practice, which gave rise to an animated discussion. He submitted that there are conditions under which a civilised country should give to holders of foreign diplomas privileges equal to those conferred on possessors of its own; that these conditions should not necessarily involve a re-examination; that they need not be the same as between a mother country and her colonies, and that the granting of such privileges by a country need not imply reciprocity on the part of others. There appeared to be nearly a general acceptance of Dr. Acland's proposition that admission to practice should be governed by satisfactory evidence of qualification, professional and moral, altogether independent of any question of reciprocity. Dr. Acland's paper was followed by an abstract of one by Dr. Rabagliati, on the precautions to be taken in medical nomenclature and classification to guard against false statistical conclusions, but from the very brief period allowed for the reading, and the extremely condensed form of the abstract, it was difficult to ascertain the full bearing of the paper. It elicited some remarks on the necessity for publishing tables of diseases *in extenso*, instead of giving merely classified abstracts.

Dr. H. Van Capelle gave an interesting account of the

measures adopted in Holland to prevent the diffusion of hydrophobia with their results, illustrated by maps showing the distribution of fatal cases of the disease among the population of Holland in each year from 1875 to 1880. Dr. Colam, who was fleet surgeon with the late Arctic Expedition, read a paper on the dog disease or canine madness of the arctic regions, viewed in connexion with hydrophobia, together with the measures used and suggested for its extinction. In the discussion which followed much importance was attached to stamping out the disease by the destruction of all dogs affected as soon as its existence is clearly ascertained. Mr. Dolan, who gave details of the prevalence of rabies in England, and its progressive increase during the last few years, urged the necessity for an efficient dog Act to enable this formidable disease to be brought under control, a suggestion which appeared to meet with the support of the section.

On Tuesday, after a paper by Dr. McCormack of Belfast on limiting the force of contagion and infection by holding the breath whilst in immediate contiguity with the sick, the discussion on Home Contagia, which had been postponed from Friday, was taken. Dr. Blaxall gave an account of an outbreak of cholera in the fleet at Malta, which afforded strong evidence of local origin, and both he and Dr. de Chaumont expressed decided opinions of the inadequacy of quarantine to ward off the disease in the absence of proper hygienic measures. As regards the spread of enteric fever, scarlet fever, measles, whooping-cough, and diphtheria, and especially scarle
attached by various speakers to the registration, or as Mr. Simon more correctly termed it, the notification of cases of infectious diseases, the establishment of free hospitals for their treatment, the detention of the cases for a sufficient length of time in these hospitals, and the judicious use of disinfectants. Of the latter, heat appeared to be the most relied on for the disinfection of clothing, bedding, and such articles, while fresh air, hot water, and sulphur fumigation were deemed most efficacious for buildings. The discussion was followed by an abstract of a paper by Dr. Carpenter on sewage irrigation, which, in the absence of the author, gave rise to very few remarks. At the conclusion of this paper, Dr. Varrintrapp, after a well-merited eulogium on the valuable services which had been rendered by Mr. Simon to sanitary science not in England only but over the whole world, proposed a vote of thanks to him for the manner in which he had discharged his duties as president of the section, and this, with a similar vote to the secretaries for their valuable and important services, having been unanimously accorded, the proceedings of the department of State Medicine were brought to a close.

THE GENERAL MEETINGS.

THE past week has been one of uninterrupted hard work, and however this meeting of the Congress may be hereafter known, it will, at any rate, be conspicuous for the amount and value of the work done in the sections and museum. Where to a regular attendance at the business meetings constant social engagements have been added the stress laid upon the members must have been rather severe. The week has been simply crowded with "good things," and the difficulty has been to choose between rival claims of entertainments, all very tempting. The general meetings have been, on the whole, well attended. On Thursday, Aug. 4th, Dr. Féréol read the Address prepared by the late Dr. Maurice Raynaud, prefacing it with a feeling and graceful tribute to his deceased friend. On Friday Dr. Billings carried away his audience with his clever and witty address on Medical Literature, which was delivered in a style worthy of the excellence of the matter. On Monday afternoon Professor Volkmann read his German address on the recent progress in surgery, which was exclusively devoted to a review of the influence of antiseptic surgery. He was followed by M. Pasteur, who in a few minutes laid before the meeting the results of some of his most recent experiments in regard to virus vaccination. The enthusiasm with which his address was received was richly merited, whether regarded as homage to a man whose labours have had such immense and widespread influence upon the most important applications of science to humanity, or as an expression of admiration of the magnificent discovery he then described. On Tuesday the closing meeting of the Congress was held; Professor Huxley delivered his address on the connexion of the biological sciences with medicine. Mr. Mac Cormac followed with a statement, the most important items of which were that the number of members amounted to 3210, that the sections had held 119 meetings, extending over 293 hours; that there had been delivered 464 written papers and 360 oral addresses. The attendance at the sections had been large, and had not shown signs of falling off even quite to the close. The museum was referred to as a great success, and the demonstrations of living patients had been attended by crowds each morning. Sir James Paget then presented the following resolution forwarded by Professor M. Foster from the Physiological section: "That this Congress records its conviction that experiments on living animals have proved of the utmost service to medicine in the past, and are indispensable for its future progress; that accordingly, whilst strongly deprecating the infliction of unnecessary pain, it is of opinion that, in the interests of men and animals, it is not desirable to restrict competent persons in the performance of such experiments." Pointing out that it was impossible to discuss such a resolution then, the President asked those who were opposed to it to record their names and votes at the close of the meeting. The resolution was then adopted with loud cheers, and no hand was held up in opposition to it. A resolution received from the Ophthalmological section on the subject of the tests most applicable to be employed in working and observing signals by land or sea where the lives of others are involved was similarly carried unanimously, and the recommendations of the section ordered to be forwarded by the Hon. Secretary-General as the opinion of the Congress to the Foreign Secretary, the First Lord of the Admiralty, and the President of the Board of Trade. Mr. Bowman moved and Professor Lister seconded, a resolution presenting a medal of honour to Professor Donders (President of the last Congress), Dr. Guye the (Hon. Secretary-General of the last Congress), to Madame Raynaud, as a souvenir of the high part her husband was to have taken, and to the readers of the general addresses, Professor Virchow, Dr. Féréol, Dr. Billings, Professors Volkmann, Pasteur, and Huxley. This resolution was carried by acclamation, and Sir James Paget then presented the medals (engravings of which we insert on the opposite page), requesting Professor von Langenbeck to receive Professor Virchow's, and Professor Charcot Madame Raynaud's and Dr. Féréol's. A vote of thanks to those who, not being members of the Congress, had so largely aided in making the meeting a success, was moved by Professor von Langenbeck and Mr. Prescott Hewett; and a similar vote to Mr. Makins and his coadjutors, Messrs. Coxwell and Little, and the permanent members of the staff of the Honorary Secretary-General, was moved by Dr. Guye and Sir R. Bennett, and carried with loud cheers. The part that these gentlemen have taken, and especially Mr. Makins, has not been conspicuous, but those who have been engaged in the working of the Congress know to how large an extent its success is due to their business capacity and untiring energy; Mr. Mac Cormac is to be congratulated on having received such assistance. The selection of the next place of meeting was referred to the Executive Committee, and it was stated that invitations had been received from the King of Spain, from Copenhagen, Stockholm, and Christiania. A vote of thanks to Mr. Mac Cormac for his very efficient services was moved by Drs. Billings and Guéneau de Mussy, and the reception which the resolution met from every member present must have been in the highest degree gratifying to Mr. Mac Cormac, and in some measure a reward for his long-continued, arduous, and self-denying labours on their behalf. M. Charcot and Professor Donders moved the last resolution, thanking Sir J. Paget for his highly efficient conduct in the chair. This resolution was carried with enthusiasm, and the whole meeting rose and cheered the President. In a few words which formed an apt conclusion of a week's work in which he has distinguished himself equally by his business capacity, his eloquence and graceful and lavish hospitality, Sir James Paget closed the meeting, wishing all "good-bye," and expressed the hope that their "good being" might come from its highest possible source—well doing. And the Great International Medical Congress of 1881, was dissolved.

THE ENTERTAINMENTS.

By recording here the general and the larger and more public entertainments no adequate idea can be given of the extent and profusion of private hospitality, which has done so much to make the visit of our foreign guests enjoyable. Some of the more distinguished among them, who have had several invitations for every meal of the day, and have usually had to make at least one "after dinner speech" each day, have probably found pleasure a harder task-master than so-called work. On Thursday, August 4th, the Lord Mayor entertained a party of nearly 300 at dinner at the Mansion House; the foreigners present included von Langenbeck, Donders, Billings, Pasteur, Flint, Küster, Büsch, Klebs, Cornil, Brown-Séquard, Bigelow, Gerhardt, Hardy, His, Pantaleoni, Charcot, Esmarch, Brandis, Ollier, Tarnier, Verneuil, Parrot, Ranke, and many others. In proposing the toast of the International Medical Congress, the Lord Mayor spoke of the great pleasure it gave him to welcome such a distinguished company at the Mansion House; amidst an age of congresses, none had yet assembled which promised to have more important results than the one he then entertained, composed so largely of men distinguished for their scientific research, high intellectual gifts, and fruitful labours. Sir James Paget replied and assured the Lord Mayor that although in science they looked for constant change, none had a higher regard for the institutions representing permanence such as that whose

hospitality they were then enjoying than the doctors. In response to the toast of the Foreign Guests, proposed by the Lord Mayor, Professor Langenbeck expressed his warmest thanks for that magnificent banquet, and said that none would ever forget the happy days they had been allowed to spend in London. Professor Trélat spoke of the hospitality he and all had received, and of the great improvements that had taken place in London during the last thirty years. Professor Pantaleoni referred to his visit to London in 1851, and the great changes that he saw now. He thought England deserved to be free and prosperous, for she had respected the liberties and aims of others. English science had always had the characteristic of being practical and certain, and he believed it was as distinguished for this to-day as ever. Dr. Austin Flint thought the Meeting of Congress would greatly increase the affection of the daughter for the mother country; and that there would soon be such an exodus from America to London that to cure it the Congress would have to meet in New York. Professor Donders, in proposing the health of the Lord Mayor, said that he came to London with great expectations, but that the reception and all the arrangements had far surpassed all he had pictured; and that evening was the climax, for the City of London acknowledged the real value of medical science to humanity.

On Friday a lunch was given by Dr. Broadbent, President of the Medical Society of London, in the Society's rooms, to the Honorary Fellows recently admitted and to the Council of the Society. After the lunch, Dr. Broadbent presented the diplomas to each of the distinguished Fellows in turn, introducing each in a few well chosen words. Those present were: Dr. Billings, Dr. Bigelow, Professor Charcot, Dr. Emmet, Professor Halla, Professor Tarnier, Professor Verneuil, and Professor Volkmann. Short speeches were afterwards made by Professors Virchow, Charcot, Volkmann, Verneuil, and Dr. Billings, and the guests quickly dispersed to the various sections with the general feeling that they had shared in one of the most successful of all the entertainments of the week. In the evening the Corporation of the City of London gave a brilliant conversazione at the Guildhall, which was attended by over 3500 persons, including all the foreign members of the Congress. The old hall itself was beautifully decorated with choice flowers, the library, council chamber, museum, and every available room was opened and decorated. The Lord Mayor and Lady Mayoress received the guests on their arrival. The plate of the Corporation and City Companies was shown in one of the rooms, and made a splendid display; in the library many rare literary and art treasures were exposed, and the museum, of course, contained many objects of rare interest. Two military bands, and a concert of vocal music, contributed to the pleasure of the evening, and there was a liberal supply of man's more material wants in the crypt. The rooms were lighted by the electric light, the Swann and the Monnim lights being tried in places, the latter being supplied with electricity from storage batteries. Altogether, this reception was a most brilliant success.

Saturday was a half-holiday, the afternoon being given up

to excursions and garden parties. Several hundred ladies and gentlemen accepted Mr. and Mrs. Spencer Wells' invitation to a garden party at Hampstead, where there was every provision that nature and hospitality could provide. About 1000 went by water or rail to Normansfield, at Dr. and Mrs. Langdon Down's invitation. A large party was taken over Hampton Court Palace by Dr. Down on their way to Hampton Wick. In addition to the beautiful grounds all the institution was open to inspection. As is well known, every effort has been made by Dr. Down, with the able help of Mr. Plumbe, his architect, to make his house as complete in all its arrangements as can be, and they have succeeded in making every provision for the safety, comfort, enjoyment, and instruction of those entrusted to their care. About 300 guests, including the President of the Congress, visited Fairlawn, Wimbledon Common, the residence of Mr. Saunders, President of Section 12. The beautiful grounds were in splendid condition, and the afternoon was greatly enjoyed. The Hungarian Band played in the garden.

Another party was received by Sir J. D. Hooker, at Kew Gardens. Dr. A. Carpenter conducted a large number of the members of the Congress over the Sewage Farm at Croydon, which was most thoroughly and satisfactorily explored. They were then entertained at lunch in the interesting old hall at Beddington, and the very fine vegetables and fruit were a practical test of the productive capacity of the farm. The United Hospitals (Guy's and St. Thomas's) Club, asked a party to dine with them at the Star and Garter Hotel, Richmond, and about seventy sat down to an excellent dinner. Mr. Bryant occupied the

chair, the guests included Drs. Charcot, Verneuil, Billings, Brandis, Liman, Lancereaux, Erb, Hueter, Sayre, Sir H. Thompson, Mr. Holden, and many others. Those of the guests who spoke referred in warm terms, not only to that act of hospitality, but to the remarkable success of the whole meeting, and to the warmth of the welcome they had received on all sides. Later in the evening the Countess Granville gave a reception, to which many members of the Congress were honoured with invitations. Among those present were the Ambassadors of the Courts of Turkey, Italy, France, Spain, Portugal, Belgium, and the Netherlands, Sir James and Lady Paget, Sir R. and Lady Bennett, Drs. Dujardin-Beaumetz, Oscar Simon, Minis Hays, Trélat, Andrew Clark, Albanese, De Mussy, Rothe, Brunton, Angelucci, Bigelow, Axel, Krebs, Vidal, Pavy, Rees, Volkmann, Battey, Martin, Maclagan, Ollier, Allen Thomson, and many others.

On Monday evening the Master and Wardens of the Society of Apothecaries entertained at dinner a select company of about 120 in their ancient hall at Blackfriars. The tables were profusely decorated with flowers, and the dinner one of the highest excellence with very choice wines. Among the foreign guests we noticed Drs. Esmarch, Billings, Volkmann, Ball, Lancereaux, Goltz, Hardy, Krause, Worms, Eulenberg, Simon, Warlomont, Küster, Frerichs, G. de Mussy, Chauveau, Carl Reyher, Erb, and Czerny. The toast of the foreign visitors was responded to by Dr. Worms, Professor Esmarch, and Dr. Billings, Dr. Quain, Mr. Lister, and Sir H. Thompson. In the evening the whole Congress was invited to a 'conversazione at the College of Surgeons, which was largely attended. The Museum was illuminated with the electric light, which to some tastes had a somewhat ghastly effect; whether it was the coming at the end of such a long and brilliant series of entertainments, with the consequent *ennui*, or the absence of ladies and some of the more brilliant adjuncts of other soirées, we know not, but the evening was not such a striking success as some of the former. On Tuesday a large number of the members of the Congress with their friends dined informally at the Crystal Palace, and afterwards witnessed a fine display of fireworks. The informality and ease of the meeting, and possibly also a sense of relief at having reached the end of what was a very hard week for all actively engaged in it, contributed to make this jovial gathering a very successful one.

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF MEDICAL INSPECTORS OF THE LOCAL GOVERNMENT BOARD.

Uckfield, Sussex, by Mr. W. H. Power.—This inquiry was called for on account of prevalence of enteric fever. Uckfield is a large village of 2400 inhabitants, which has of late years been growing into a town, and to which has been given for sanitary purposes "urban" privileges. The process of growth has been after the fashion of places which have gradually thrown aside their rural characteristics and assumed or begin to assume urban traits. Open spaces at one time occupied as gardens or paddocks have been filled up with houses, while plots of ground devoted to building purposes have been built upon without any proper regulation, and as a rule the sanitary defects which are conspicuous in the older dwellings of the place have been repeated in the newer. The water-supply is obtained from wells situated near the houses in porous ground, which has "for generations been fouled by soakage from privies, cesspools, ashpits, defective drains, and the like," and of which Mr. Power says, "It is doubtful whether many wells can be found in Uckfield that may be trusted to afford a uniformly wholesome supply of water; and this not only because most of the wells are liable to fouling from their own domestic surroundings, but for the reason also that noxious matters gaining access to the soil of any high part of the town can, owing to the dip of the ground, and to its geological character, pass readily enough above as through fissures in the rock, from top to bottom of the place, contributing pollution to many wells by the way." The place is not systematically sewered, and such sewers as exist have at the junctures of the branch sewers a sort of catch-pit, especially designed, as it would appear, to retain within the sewers the very materials it should be the object of these channels to carry directly away. The sewers of the older part of the town are, it seems, entirely unventilated. The drainage of the houses is in a transitional state, but most of these are now connected with the sewers, but such care as is required to make these connexions free from harm to the inmates of the houses has not been exercised. The older fashion of disposal of the excrement by privy-pits and cesspools has been well-nigh abolished in the place, and a system of hand-flushed waterclosets generally adopted. Enteric fever had shown itself in scattered cases in the town several months before the attention of the Local Government Board was called to the occurrence; and the prevalence which demanded an inquiry was more or less clearly associated with the defects of water-supply and sewerage which have been referred to. Of this prevalence Mr. Power observes: "There is here a history of enteric fever, whether imported or of home production, repeatedly failing to propagate itself under conditions apparently singularly favourable for its reproduction, but in the end tending to become seasonal in its occurrence. Also there is history of *autumnal* enteric fever, infertile at first under circumstances seemingly conducive to its fertility, but suddenly, in a particular season, developing reproductive powers, to be in a subsequent season fully maintained with a widely increased range. Suggestions of this sort concerning the natural history of enteric fever are of no little interest, but perhaps not of immediate practical value." The report terminates with a series of recommendations for the guidance of the authorities in dealing with the defective sanitary conditions in the town.

Enteric Fever, and Sanitary Condition of Melton Mowbray, by Dr. Blaxall.—Few English persons are not interested in the sanitary condition of Melton Mowbray. The Melton Mowbray pies have become, it may be said, a sort of national institution; and the conditions of the locality in which they are fabricated concern the stomach and accordingly the health-condition of a very large proportion of the inhabitants of the kingdom. It is with something like a shock, therefore, that we read, at the beginning of Dr. Blaxall's report, of the sanitary state of the place: "The sanitary condition of the town, I regret to have to repeat, is eminently unsatisfactory, with reference specially to the means of excrement removal and disposal, the water-supply, and the drainage; while pigsties and slaughter-houses may be reckoned among the many evils which here point to the want of efficient sanitary administration." If this be the state of the pigsties and slaughter-houses, what confidence can we have in the condition of the meat supplied from them for the manufacture of the raised pies, which form the special industry of the place? The public mind is getting a healthy sensitiveness to these matters; and the savoury luxury prepared at Melton Mowbray will scarcely escape the damaging consequences of Dr. Blaxall's revelations as to the state of the town, unless the sanitary authority and manufacturers bestir themselves quickly to amend matters. Privy and cesspit nuisances abound in the town, the water-supply is of doubtful quality, and the sewerage is imperfect. Enteric fever is not a new visitor to the town, but in the course of 1880 the disease invaded forty households, causing sixty-five cases; and Dr. Blaxall's inquiry into the circumstances attending these cases, showed that they appeared in houses along a certain line of sewers, and that the air of these sewers appeared to be mainly concerned in the spread of the disease. The salient points of the outbreak he sums up as follows:—"(1) The fever was confined to a particular portion of the town traversed by one line of sewers, the contents of which had become specifically infected with the contagion of enteric fever. (2) The families invaded were exposed to the escape of the infected sewer air through the medium of untrapped or imperfectly trapped drain-inlets in the immediate vicinity of their dwellings. (3) The peculiarities in the incidence and succession of attacks arose from flooding of imperfectly ventilated sewers at the lower parts of the town, forcing infected air through unguarded drain-openings at higher levels. (4) Other parts of the town beyond the immediate influence of the infected sewers were exempt from fever." Dr. Blaxall concludes his report with a series of recommendations to the sanitary authorities, which, if promptly acted upon, will not only ensure the town against serious prevalence of enteric fever, but will enable outsiders to eat Melton Mowbray pies without unpleasant afterthoughts

SMALL-POX HOSPITALS IN THE METROPOLIS.

A very interesting Parliamentary return has been issued, moved for by Mr. Henry H. Fowler, showing the number of hospitals, whether temporary or permanent, provided for small-pox patients under section 37 of the Sanitary Act, 1866, by the vestries and district boards in the metropolis. It would seem that of the forty odd sanitary districts to which the return applies, two only of themselves have provided permanent hospital accommodation for small-pox patients; six have provided temporary accommodation only; seven have arranged with other districts to receive their small-pox patients, and twenty-four have failed to provide any accommodation.

THE VACCINATION ACT, 1867.

An amended return has been issued by the House of Commons, showing the number of persons who have been imprisoned or fined for non-compliance with the Act relating to the vaccination of children. The return with certain exceptions relates to the whole period, since the date of the coming into operation of the Vaccination Act of 1867 (the 1st January, 1868), until the 31st of July, 1879, inclusive. It would appear that within this period within England and Wales, 6138 were fined and 138 imprisoned, and that of the persons imprisoned, twenty were imprisoned for one month, or above fourteen days, and 118 for fourteen days, or less period.

A curious case has been heard in the County Court, Dover. Dr. Simpson, the Public Vaccinator and Medical Officer to the Dover Board of Guardians, claimed from the Guardians a sum of £35 18*s.* 6*d.* for vaccinating 481 children. The claim was not disputed, but the guardians asserted their inability to allow payment, Dr. Simpson's appointment not having been sanctioned by the Local Government Board. The judge regarded the omission as of great public importance; but whether the Local Government Board or the Guardians are most to be blamed does not appear.

Notwithstanding the official regulations governing awards for vaccination have been published for some time, Mr. Birt had no compunction in wasting the time of the House of Commons on the 4th inst. by asking a question of Mr. Dodson on the subject.

Pending the hearing of the action "Chambers *v.* the Metropolitan Asylums Board," proceedings are being taken to restrain that Board from sending any patients into the Fulham Small-pox Hospital.

St. Pancras vestry, we regret to say, has rejected a motion for acquiring a site for and the erection of a "Fryers' Destructor."

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

English urban mortality showed a considerable decline last week. In twenty of the largest English towns 4737 births and 3342 deaths were registered, the births being 449 and the deaths 15 below the average weekly numbers during 1880. The annual rate of mortality in these twenty towns, which in the six preceding weeks had risen from 18·5 to 25·2, declined last week to 22·9. The lowest rates in the twenty towns were 9·7 in Plymouth, 16·4 in Brighton, and 17·9 in Bristol and Wolverhampton. The rates in the other towns ranged upwards to 27·5 in Nottingham, 28·9 in Hull, 29·0 in Sunderland, and 30·1 in Leicester.

The deaths referred to the seven principal zymotic diseases in the twenty towns, which in the three preceding weeks had been 834, 1029, and 1157, declined last week to 885; these included 533 from diarrhœa, 99 from measles, 95 from scarlet fever, 63 from whooping-cough, 41 from small-pox, 38 from fever (principally enteric), and 16 from diphtheria. The fatality of diarrhœa showed a general decline, but was again largest in Leicester and Nottingham. Small-pox caused 49 deaths in London and its outer ring of suburban districts, and one each in Liverpool, Oldham, and Leeds. The number of small-pox patients in the metropolitan asylum hospitals fell to 773 on Saturday last, of which 121 were inmates of the *Atlas* hospital ship, and 154 of the Convalescent Camp Hospital at Darenth.

The deaths referred to diseases of the respiratory organs in London, which had been 152 and 156 in the two preceding weeks, further rose to 165 last week, and exceeded the average number in the corresponding week of the last ten years by 6. The causes of 70, or 2·1 per cent., of the 3342 deaths in the twenty towns last week were not certified either by a registered medical practitioner or by a coroner. In London the proportion of uncertified deaths did not exceed 1·0 per cent., whereas it averaged 3·3 per cent. in the nineteen provincial towns.

HEALTH OF SCOTCH TOWNS.

The annual death-rate in eight of the largest Scotch towns rose last week to 21·1 per 1000. The deaths referred to the principal zymotic diseases rose to 99. The fatal cases of diarrhœa were 48 last week, and were equal to an annual rate of 2·1 per 1000.

HEALTH OF DUBLIN.

The annual death-rate in Dublin, calculated upon the population enumerated in April last, which in the two preceding weeks had been 24·3 and 17·5, was last week 19·4. The deaths included 14, or 11 per cent., which were referred to the principal zymotic diseases, against 23 and 10 in the two preceding weeks.

HEALTH MATTERS GENERALLY AT HOME AND ABROAD.

WARRENPOINT SEWERAGE.

The committee appointed by the Newry Board of Guardians in reference to the scheme proposed by Mr. Birch for the sewerage of Warrenpoint, have reported that they consider his plan of disposing of the sewage a suitable one, provided the land required can be obtained, and that the cost of the same and carrying out of the works does not exceed an outlay of £3000. Mr. Birch estimates the cost of his plan at £3595, but the committee believe that not less than £5000 will be required.

The sub-committee appointed by the Glasgow Town Council to consider the sewerage system have recommended the adoption of the scheme submitted by Mr. Bateman and reported on by him three years ago—viz., the interception of the sewage by means of sewers, and conveying it to suitable stations on the north and south banks of the river Clyde, there to be dealt with by means of precipitation and filtration, the effluent being clarified and rendered fit to be discharged into the river at these points.

Clacton-on-Sea is no longer dependent on surface wells for its water-supply. By boring the chalk to a depth of 400 feet a pure and plentiful supply has, it is stated, been secured, and last week the Mayor of Colchester inaugurated the new system.

Small-pox has been very prevalent at Sydney. The outbreak has been traced to the house of a Chinaman. The authorities are blamed for want of proper vigilance in providing against the spread of the disease.

In consequence of the persistence of the outbreak of small-pox in Sydney, it has been determined by the health authorities to erect a small-pox hospital without delay.

THE SERVICES.

CORPORAL FARMER, V.C., ARMY HOSPITAL CORPS.

This gallant non-commissioned officer, who was recommended for the Victoria Cross by Sir Evelyn Wood for his bravery at the Majuba Hill battle, attended at Osborne on the 9th and received the high honour of the decoration it being personally bestowed on him by Her Majesty the Queen.

THE EXAMINATION FOR THE PUBLIC SERVICES.

The examination for commissions in the Medical Departments of the Army, Navy, and Indian Service commences on Monday next, the 15th, at Burlington House. The number of entries for the Army and for India is considerable, and competition is therefore likely to be severe.

BENGAL MEDICAL ESTABLISHMENT.—To be Brigade Surgeons: Surgeons-Major Alfred James Dale, Benjamin Simpson, M.D., Robert Faure Hutchinson, M.D., John Pitthall, M.D., George Vernon Currie, Theobald Ringer, M.D., Philip Warren Sutherland, Alfred Eteson, M.D., William Watson, Alexander John Cowie, William John Palmer, M.D. (since retired), James Henry Loch, M.D., Robert Rouse, James Rawlinson Jackson, M.D., Archibald Macdonald Garden (since retired), John Brake, Alexander Garden, William Walker, M.D., George Alder Watson, Theobald Mathew, James Fairweather, M.D., Charles Julian Jackson, Robert Bird, M.D., and John Martin Coates, M.D.

BOMBAY MEDICAL ESTABLISHMENT.—To be Brigade Surgeons: Surgeons-Major Lewis Stanhope Bruce, William Peyton Partridge, Henry Cook, M.D., John Pinkerton, M.D., Christopher Joynt, M.D., William Edward Cates, John Cruickshank, M.D., Charles Kelway Colston, and William Henry Colville.

ADMIRALTY.—The following appointments have been made:—Staff Surgeon J. D'A. Hervey to the *Sappho*, when commissioned on the 16th; Surgeon Wm. R. White to the *Royal Adelaide*.

Brigade Surgeon William Langford Farmar and Surgeon-Major T. W. Jackson, Army Medical Department, have arrived home from India on six months' leave of absence on private affairs.

The last mails from the West Indies brought intelligence that some cases of yellow fever had occurred at Barbadoes amongst the civil population, and that precautions have been taken by the military and medical authorities to prevent, if possible, the disease spreading to the garrison.

MEDICAL NOTES IN PARLIAMENT.

Small-pox Hospital Ships.

IN the House of Commons on Monday Mr. Dodson replied to Baron H. de Worms that he could not admit that the small-pox hospital ships off Greenwich were moored so close to the shore that there was danger of their causing the epidemic to spread to the adjoining districts. He was distinctly advised by one of the medical inspectors, who had great experience, that no such risk was to be apprehended. No direct notice was given to the owners of the wharves in front of which the ships were moored, but the intention to place them there was publicly known some time beforehand, and no objection was raised. So far from the Thames Conservancy having objected, the spot was selected at their suggestion. The Asylums Board at first proposed to place the vessels lower down the river, but the Local Government Board were advised that acute cases could not, without serious danger, be removed to so great a distance. The ships were now moored close to the spot where the *Dreadnought* was formerly stationed. They were intended to remain only as long as the epidemic lasted. He could not state the distance from the shore, but he had been on board the ships himself.

Small-pox Statistics.

On Tuesday Mr. Dodson stated to Mr. H. Allen that the Registrar-General's returns showed, as far as practicable, the actual number of deaths from small-pox amongst vaccinated and unvaccinated persons in the metropolis. He had no means of ascertaining the number of cases of the disease which occurred, except those treated in the hospitals. Statistics on that subject would shortly be laid before the House.

Vaccination in the French Army.

Mr. Dodson, in answer to Mr. Blennerhassett, said he had received an extract from a French newspaper, stating that four regiments of Zouaves at Algiers were afflicted with disease in consequence of vaccination. He would consider whether it was desirable to address a communication to the French Government on the subject.

Emigrant Ships.

Mr. Chamberlain, answering a question by Mr. Talbot, stated that Miss O'Brien's complaints as to the treatmen tof emigrants on board the Atlantic steamers had been disproved by the Board of Trade inquiry. Copies of the report had been sent to the shipowners, with a circular inviting communications from them, and there was no reason to doubt that they would adopt proper precautions.

The Limerick Poisoning Case.

On Wednesday Mr. Gibson gave notice that on Friday he would ask the Chief Secretary to the Lord Lieutenant of Ireland whether his attention had been called to the recent lamentable death by poisoning of Mr. Hone in Limerick, and whether he would take steps to have a thorough and satisfactory investigation into the occurrence.

A Publican as Registrar.

On Wednesday Mr. Forster stated to Mr. Biggar that the appointment of Robert Humphrey, a Belfast publican, as deputy registrar of births, marriages and deaths, in the districts of Dr. Martin and Dr. Torrens, was the subject of investigation by a Government inspector. The result of the inquiry was not yet known.—Mr. Biggar gave notice of another question for Monday.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AT an ordinary meeting of the Council of the Royal College of Surgeons of England, held on Thursday last, the resignation of Mr. John Marshall, F.R.S., from the Court of Examiners, was accepted. The vacancy thus caused will be filled at the meeting of the Council to be held in October next. No nominations have yet been made.

"A DISCLAIMER."

To the Editor of THE LANCET.

SIR,—My name having been printed in the programme of the International Medical Congress for Monday last, in connexion with a proposed demonstration of "Hypnotism" by Dr. Beard of New York, I beg permission to state that I have never witnessed any of Dr. Beard's experiments; and had a paper of mine, which was accepted by the Mental Section, been read as arranged on Monday afternoon, I intended to enter a protest against the assumption that in introducing the *subject* I introduced Dr. Beard. The form in which the announcement was made was obviously wrong. I had no "remarks" to make upon Dr. Beard's demonstrations, being wholly ignorant of their nature or purpose.

Will you allow me further to say, that so far am I from having any sympathy with "mesmerism," "magnetism," or "spiritualism," that I have never been *present* at any séance of the class, or witnessed any experiments, in which the results obtained were not distinctly due to the operation of physical forces acting in physical processes. I have no belief in any form of biological phenomena which cannot be explained on purely physiological grounds and premisses. The paper which I proposed to read, and which in my absence was "taken as read," and will, therefore, be printed in the Transactions, explains what is called "Hypnotism"—while objecting to the term—on the commonly received principles of nervous action.

I am, Sir, yours truly,

Welbeck-street, W., Aug. 8, 1881. J. MORTIMER GRANVILLE.

NORTH OF SCOTLAND MEDICAL ASSOCIATION.—At the annual meeting of this Association, held at Aberdeen last week, Dr. Lyon of Peterculter was installed as the new president, in place of Dr. Beveridge, who retired. Dr. Lyon's address dealt with the present as compared with past methods of combating certain forms of disease. The question of the notification of infectious diseases was introduced by attention being drawn to a Bill submitted by Mr. Webster, M.P., which was regarded with approval by the members. A motion expressive of the desire of the Association to co-operate with other scientific bodies in an invitation to the British Association to meet next year at Aberdeen was agreed to. Dr. Pirrie, Professor of Surgery, was nominated as the President elect.

LYING-IN MORTALITY IN WORKHOUSES.

To the Editor of THE LANCET.

SIR,—I desire to forward you for publication the enclosed return recently requested from this, in common with other workhouses, by the Local Government Board. The return, which is compiled from carefully kept books, shows, on the one hand, a low mortality, and, on the other, a high rate of illegitimacy. Those two facts appear to be more or less common to all Poor-law lying-in wards. All the cases "in all other causes" column died from lung diseases (more or less chronic), with the exception of one case in 1874, where the cause of death was rupture of the uterus. All the multiple births were cases of twins. All the cases of death from puerperal fever, hæmorrhage, convulsions, and puerperal peritonitis, including the case of rupture of the uterus, occurred in young illegitimate primiparæ.

I am, Sir, yours faithfully,

W. M. DUNLOP, M.B.,

Resident Medical Officer, St. Pancras Workhouse, N.W.

August, 1881.

Return showing the number of Births in the St. Pancras Workhouse or Lying-in Wards, and the number of Women confined therein who died in Childbirth, or from causes connected therewith, during the last ten years, with other particulars relating thereto.

Years.	Number of Births in the Workhouse.			Number of First Confinements.	Number of Mothers Married.	Number of Mothers Unmarried.	Number of Twins or other Multiple Births.	Number of Women who Died in Childbirth, or from causes immediately connected therewith, showing the number who died under each of the following heads.					
	Boys.	Girls.	Total.					Puerperal Fever.	Hæmorrhage.	Convulsions.	Puerperal Peritonitis.	All other Causes.	Total.
1871	85	95	180	103	48	129	3	1	—	—	—	1	2
1872	110	88	198	84	38	158	2	—	—	1	—	—	1
1873	114	111	225	153	54	168	3	—	1	—	—	2	3
1874	145	123	268	169	52	214	2	—	—	—	2	3*a*	5
1875	114	91	205	88	40	160	5	1*b*	1	—	—	1	3
1876	119	113	232	135	49	182	1	—	—	1	—	1	2
1877	123	127	250	144	50	199	1	—	—	1	—	2	3
1878	124	110	234	129	54	177	3	—	—	1	—	—	1
1879	118	109	227	144	34	193	—	—	—	—	2*c*	3	5
1880	138	129	267	186	57	207	3	—	—	—	—	1	1
Total ...	1190	1096	2286	1335	476	1787	23	2	2	4	4	14	26

a One of the three cases was rupture of the uterus. *b* Accompanied with violent mania.
c In one of the cases there was a past history of traumatic peritonitis.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen, having passed the required examination for the diploma, were duly admitted Members of the College on the 28th ult.:—

Alpin, W. G. Patrick, Calcutta.
Blatherwick, Henry, Rochester.
Dreaper, John Broomfield, Manchester.
Fletcher, G. A. Clune, Hereford.
Hodge, Arthur, L.S.A., Liskeard.
Hunt, Howard Wrangham, Brampton, Oxon.
Kenny, Alexander Symonds, Great Guildford-street.
Marras, Ernest Adrian, Halsey-street.
Marsden, Thomas, M.B. Aberd., Preston.
Milligan, Robert Arthur, Kimbolton.
Rhodes, Thomas, Huddersfield.
Shaw, John Alexander, L.S.A., Deal.
Unicume, Thomas, Headcorn.

The following gentlemen were admitted Members of the College on the 29th ult.:—

Brewitt, James Bunney, L.S.A., Melton Mowbray.
Clough, Morley Eddison, Worksop.
Colman, G. M. Hoblyn, L.S.A., Holland-road.
Daniel, Charles Henry, L.S.A., Derby.
Dashwood, Edmund Samuel, L.S.A., Billingford.
Davis, Edward, L.S.A., Euston-square.
East, Frederick William, L.S.A., Lower Clapton.
Eminson, T. B. Franklin, L.S.A., Scotter, Lincolnshire.
Loveridge, Arthur William, Merthyr Tydfil.
Norvill, Frederick Harvey, L.S.A., Chester-terrace.
Prentice, Zachariah, L.S.A., Canterbury.
Smith, Herbert, Weston-super-Mare.
Sumner, J. H. Surtees, Chelsea.

This is the last examination for the Membership of the College until November.

UNIVERSITY OF LONDON.—The following candidates have passed the recent First M.B. Examination:—

ENTIRE EXAMINATION.

FIRST DIVISION.

Black, Robert, London and Sussex County Hospitals.
Cave, Edward John, St. Bartholomew's Hospital.
Dunn, Louis Albert, Guy's Hospital.
Gordon, Edward, Owens College.
Goatling, William Ayton, B.Sc., University College.
Grayling, Arthur, St. George's Hospital.
Hind, Wheelton, Guy's Hospital.
Horrocks, William Henry, University College,
Hull, Walter, St. Thomas's Hospital.
Jones, John Hervey, Owens College.
Lawrence, Laurie Asher, St. Bartholomew's Hospital.
Martin, Albert, Guy's Hospital.
Merrifield, Sydney Sargent, King's College.
Perez, George Victor, University College.
Prideaux, Frances Helen, London Sch. of Medicine for Women.
Reynolds, Ernest Septimus, Owens College.
Roughton, Edmund Wilkinson, St. Bartholomew's Hospital.
Scharlieb, Mary Ann Dacomb, Madras Medical College and London School of Medicine.
Shore, Thomas William, B.Sc., St. Bartholomew's Hospital.
Targett, James Henry, Guy's Hospital.
Thomson, Theodore, Univ. Aberdeen and University College.
Thorburn, William, B.Sc., Owens College.
Wilson, Thomas, University College.
Womach, Frederick, B.Sc., St. Bartholomew's Hospital.

SECOND DIVISION.

Bailey, Charles Frederick, St. Bartholomew's Hospital.
Bennett, Frederick William, Owens College.
Black, William Jones, Owens College.
Bown, Arthur Thomas, St. George's Hospital.
Brown, William Henry, University College.
Calger, Frederick Foord, St. Thomas's Hospital.
Carnelley, Matthew, Guy's Hospital.
Champ, John Howard, Guy's Hospital.
Cockey, Edmund Percival, St. Mary's Hospital.
Cuff, Robert, Guy's Hospital.
Dudley, William, Queen's, Birmingham.
Evans, William Arnold, Owens College.
Evans, Willmott Henderson, B.Sc., University College.
Fletcher, John, Manchester School of Medicine.
Floyer, William Wadham, Guy's Hospital.
Glover, John Philip, St. Thomas's Hospital.
Green, Charles David, St. Thomas's Hospital.
Hewer, Joseph Langton, St. Bartholomew's Hospital.
Hill, George William, St. Mary's and St. George's Hospitals.
Knight, Frederick, University College.
Maughan, James, Liverpool School of Medicine and Guy's Hosp.
Meyer, Charles Hartvig Lomo, Guy's Hospital.
Milton, Herbert Meyrick Nelson, St. Thomas's Hospital.
O'Kane, Michael, Guy's Hospital.
Paley, Frederick John, St. Bartholomew's Hospital.
Parry-Jones, Maurice, Guy's Hospital.

Powell, John Joseph, University College.
Short, Thomas Sydney, King's College.
Slater, Druce John, St. Bartholomew's Hospital.
Spencer, Herbert Ritchie, University College.
Tomlinson, Emily, London School of Medicine for Women.
Turner, Alfred Jefferis, University College.
Vann, Alfred Mason, King's College.
Wenyon, Edwin James, B.A., B.Sc., Guy's Hospital.

EXCLUDING PHYSIOLOGY.

SECOND DIVISION.

Gross, Charles, Guy's Hospital.
Hart, Herbert Wheatley, Westminster Hospital.
Marriner, William Herbert Lister, St. Thomas's Hospital.
Shillito, Henry, Birmingham School.
Tilly, Alfred, St. Mary's Hospital.

PHYSIOLOGY ONLY.

FIRST DIVISION.

Dent, Harry Lord Richards, King's College.

SECOND DIVISION.

Fox, Robert Fortescue, London Hospital.
Parry, Robert, Guy's Hospital.
Richmond, Charles Ernest, Owens College.

The following candidates have passed the recent Preliminary Scientific (M.B.) Examination :—

FIRST DIVISION.

*Bayliss, William Maddock, University College.
*Besant, Annie. (Private tuition.)
Bonnefin, Fernand Henry, University College.
Braddon, William Leonard, Guy's Hospital.
*Bradford, John Rose, University College.
*Bradford, William Jocelyn, Trinity College, Dublin.
*Brazil, Walter Henry, Owens College.
Caldecott, Charles, Guy's Hospital.
Carless, Albert, King's College.
Chadwick, James, Guy's Hospital.
Crowle, Thomas Henry Rickard, Univ. Col. and St. Mary's Hosp.
Davenport, Arthur Frederick, Univ. Coll. and Edinburgh.
De Chazal, Edmond Lucien, University College.
Evans, Evan, University College of Wales.
Finley, Frederick Gault, Owens College.
Fisher, Thomas Hammond. (Private study.)
Gardner, William Thomas, St. Bartholomew's Hospital.
Goodall, Edward Wilberforce, Guy's Hospital.
Goodall, Edwin, Guy's Hospital.
Goodman, Roger Neville, St. John's College, Cambridge.
Gray, John Power William, King's College.
Green, Henry Selby, University College.
Greig, Duncan M'Bean, University College.
Harsant, Joseph George, Guy's Hospital and Epsom College.
Haw, Walter Herbert, Charing-cross Hospital.
Hichens, Frank, London Hospital and Epsom College.
Hutton, John Stuart, St. Thomas's Hospital.
Johnson, Raymond, University College.
Kidd, Hugh Cameron, St. Thomas's Hospital.
*Kipping, Frederick Stanley, Owens College.
Lawrence, Thomas William Pelham, University College.
Little, Arthur Nicholas, Univ. Coll. and Med. Sch., Bristol.
M'Dougal, Robert Eustace, University College.
Mackinder, Halford John, Epsom Coll. and Ch. Ch., Oxford.
Melland, Brian, Owens College.
Morrison, Frederick William, St. Bartholomew's Hospital.
Nason, Edward Noel, University College.
O'Brien, Patrick Moriarty, Liverpool School of Medicine.
Palmer, Alice Mary. (Private tuition.)
Parfitt, Edward Browne, University College.
*Phillips, Francis Barclay Willmer, Guy's Hospital.
*Pilgrim, Eustace Graham, University College and Edinburgh.
Price, Alfred Edward, Guy's Hospital.
Randell, Reginald Maurice Henry, Guy's Hospital.
Rawson, Sidney George, Charterhouse and Guy's Hospital.
Rockley, Henry, Guy's Hospital.
Rowell, George, Guy's Hospital.
*Stocker, Edward Gaved, Univ. & Regent's-park Colleges.
*Tratman, Frank, Univ. Coll., Bristol and Private Study.
Washbourn, John Wychenford, Guy's Hospital.
Webb, Helen, London School of Medicine for Women.
*Whalley, Lawrence John, Royal School of Mines.
Wheatley, James, King's College.
Wild, Robert Briggs, Owens College.
Wi ls, William Alfred, Westminster Hospital.
Woolbert, Henry Robert, University College.

SECOND DIVISION.

Ackland, Charles Kingsley, King's College.
Alexander, Sidney Robert, Guy's Hospital.
Armitage, Edward Harris, Guy's Hospital.
Baigent, Richard Coventry, Hartley & Birkbeck Insts. & Pr. st.
Barendt, Frank Hugh, Liverpool School of Medicine.
Barwise, Sidney, Sir Josiah Mason's College, Birmingham.
Bernard, Letitia Caroline, Lond. School of Med. for Women.
*Boobbyer, John, University College.
Bowden, Ernest Edward, Owens College.
Bowen, Alexander George William, University College, Bristol.
Bright, Eustace Frederick, University College.
Brown, Edward Vipont, St. Bartholomew's Hospital.
Brown, Frederick Nathaniel, Epsom College.
Brown, Herbert Henry, St. Bartholomew's Hospital.
*Cutler, Eustace, Royal School of Mines.
Dale, William Kelynack, King's College.
*Datta, Parvati Nath, University College.
Dimmock, Augustus Frederick, King's College.
Du Boulay, Hubert Houssemayne, Guy's Hospital.
Ehrhardt, Julius Martin, Sir Josiah Mason's Coll., Birmingham.
Emtage, Edmund Walter, University College.
Evill, Frederick Claude, St. Bartholomew's Hospital.
Failes, Frederick George, St. Bartholomew's Hospital.
Gabriel, Leonard Maurice, St. Bartholomew's Hospital.
Gardner, Henry Willoughby, St. Bartholomew's Hospital.
Gee, Frederick William, University College.
Hamel, Julius, University College.
*Hartog, Philippa Joseph, University Coll. Sch. & Owens Coll.
Hewan, John, St. Thomas's Hospital.
Hollings, Charles Edward, Owens College.
Holt, Maurice Percy Cae, King's College.
Hoskins, Arthur Percy, Epsom College.
Hutton, John, Owens College and St. Bartholomew's Hospital.
Iddon, William Henry, Owens College.
*Irwin, John Thomas, Owens College.
Jones, Sydney Harold, St. Thomas's Hospital & Private tuition.
Lang, George Herbert, Epsom College.
*Lankester, Herbert Henry, St. Thomas's Hospital.
Lewis, Percy George, King's College.
Mariette, Ernest Paul Alphonse, King's College.
*Maudsley, Henry Sydney, Christ's College, Cambridge.
Mourilyan, Edward Pain, Guy's Hospital.
Mumford, Alfred Alexander, Owens College.
Nevins, John Ernest, University College.
Pietersen, James, St. Thomas's Hospital.
Paralow, Charles Edwin, Mason's & Queen's Colleges, Birm.
Roberts, George Edwin, University College.
Sellick, James Henderson, Guy's Hospital.
Spencer, Walter George. (Private study.)
Sander, Charles Edward, University College.
Swain, James, Westmr & St. Thos.'s & Birkbeck Institute.
Thomas, John Lewis, University College of Wales.
Weaver, John James, University College.
Webb, Henry John, University College.
Wells, Frank Barber. (Private study.)
Wilson, Albert, St. Thomas's Hospital.
Wynne, Edward Thomas, St. Bartholomew's Hospital.
Yeomans, James, University College.
Young, Charles Wheeler Forrest, University College.
Yunge-Bateman, Marcus George, Guy's Hospital.

* These candidates have also passed in the Mathematics of the First B.Sc. Examination, and have thus become admissible to the Second B.Sc. Examination.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—At examinations held on the 25th ult. and following days the under-mentioned obtained the Diploma in Surgery of the College :—

Louis J. Anderson, Thomas A. Baldwin, George V. Byrne, Thomas E. Cahill, James Coane, William J. Corbett, Charles J. Donnag, Henry J. Dixon, Robert J. Fayle, Alexander J. Fleming, William Henry, Johnson G. Hunt, John M. Kennedy, William Kenny, Frederick W. Kidd, Thomas Magner, Vincent J. Magrane, Bernard Maguire, William L. McCormack, James A. Morris, Richard McC. Nugent, Charles Parsons, Henry R. Peyton, Frederick Robinson, William S. Scott, Patrick de B. Kerrett, Thomas J. Stafford, James A. Swann, Maurice J. Preston, John Tuthill, William D. Waterhouse, and Miles E. Wilkinson.

APOTHECARIES' HALL.—The following gentlemen passed their examination in the Science and Practice of Medicine, and received certificates to practise, on Aug. 4th :—

Cook, Augustus Henry, Hampstead.
Coveney, John, Broomfield, Maidstone.
Davies, John, New Mills, Manaford.
Duncan, David, Chester-le-street.
Hart, William Hamilton, Trinity-square.
Hatton, Edwin Fullarton, Peterborough, Canada.
Lipscomb, Arthur Augustus, Forest-hill.
Russell, Michael William, Alfred-place.
Sen, Rajani Kanta, Baldara, Bengal.
Volsey, Clement Bernard, Manchester.

The following gentlemen also on the same day passed the Primary Professional Examination :—

James Miller, St. Thomas's Hospital; Harry Cornelius Edwin Rogers, University College; Richard Bush Drury Batt, St. Bartholomew's Hospital.

THE Library of the Royal Medical and Chirurgical Society will be closed for one month from Monday, Aug. 15th next, and will reopen on Thursday, Sept. 15th.

VACCINATION GRANT.—Dr. George R. Raine, Billericay, has received the Government gratuity for successful vaccination in his district.

THE American papers announce the death of Dr. Tanner. It is stated that his death was accelerated by the injury received by his constitution in his celebrated forty days' fast of last year.

BEQUESTS AND DONATIONS TO MEDICAL CHARITIES. Mr. T. J. Margrave, late of the City-road, London, bequeathed £300 to the Metropolitan Hospital Sunday Fund. By the will of the late Dr. Radford, £200 is directed to be paid to the treasurer of St. Mary's Hospital, Manchester, to be applied in the purchase of caste, models, &c., for the Radford Museum. Mr. Chadwick, late of Aberdeen, bequeathed £100 to the Royal Infirmary, and £50 to the Dispensary, Lying-in, and Vaccine Institutions, Aberdeen.

TESTIMONIAL.—A piece of silver plate was last week presented to Dr. Lynch of Loughrea, on his leaving that place. The subscriptions to the testimonial amounted to £250.

ABERDEEN DISPENSARY.—The buildings which have been for some time in construction for the purpose of providing additional accommodation for patients at this Dispensary were formally opened last week by Lord Provost Esslemont.

THE Chelsea Hospital for Women seems to be doing well. At the annual meeting on Wednesday it was stated that nearly 150 new subscribers had contributed between £200 and £300, an increase of 64 per cent. on any previous year.

THE death is announced of Mr. John Duncan, the self-taught and eminent botanist of Alford, Aberdeenshire, which took place yesterday near Alford. The deceased some time ago presented a unique collection of botanical specimens to the Aberdeen University, and a public subscription was recently raised in his behalf.

A ROLL of bank-notes, value £500, was dropped into the offertory bag at the parish church, Chelmsford, on Sunday last, with a written request that the money should be devoted to the Infirmary. On July 4th, last year, a similar donation was made in the same way for the dispensary. The donor's name is unknown.

THE foundation stone of a new hospital at Plymouth was laid last week by the Earl of Mount Edgcumbe. The building which this will replace has, we believe, been twice enlarged, but has been found inadequate to the demands made upon it. The estimated cost of the new edifice is £24,000, of which about £10,000 remains to be collected.

Medical Appointments.

Intimations for this column must be sent DIRECT *to the Office of* THE LANCET *before 9 o'clock on Thursday Morning, at the latest.*

BATTAMS, J. S., M.R.C.S., has been appointed Resident Medical Officer to the East London Hospital for Children.

BENNETT, F. J., M.R.C.S., L.D.S.Eng., has been appointed Dental Surgeon to the St. Marylebone General Dispensary.

COOMBE, G. A., M.R.C.S., L.S.A.Lond., has been appointed Medical Officer for the Second District of the Ormskirk Union.

GARLIKE, E. W. B., L.R.C.P.Ed., M.R.C.S., has been appointed Medical Officer of Health for the Cheshunt Urban Sanitary District, vice Hoar, resigned.

GOFTON, J. E., L.R.C.P.Lond., M.R.C.S., has been appointed Medical Officer of Health for the Borough of Tynemouth, vice T. Stephens, deceased.

HARPER, J., M.R.C.S.Eng., has been appointed House Physician to the Royal Hospital for Diseases of the Chest, City-road, vice J. W. Batterham, M.R.C.S., resigned.

HILL, A. B., M.D.Glas., L.R.C.P.Ed., L.S.A.Lond., has been appointed Public Analyst for the Borough of Leamington for one year.

HUXTABLE, L. R., M.B., C.M.Edin., has been appointed Assistant Medical Officer to the Border County Asylum, Melrose, vice R. A. P. Forrester, B.A., M.B., C.M., resigned.

JONES, D. J., M.D.Edin., M.R.C.S., has been appointed Junior Assistant Medical Officer of the Kent County Asylum, Barming-heath, near Maidstone.

NEALE, W., L.R.C.P.E., L.R.C.S.I., L.A.H.Dub., has been appointed Medical Officer to the Mountmellick Dispensary District and to the Workhouse of the Mountmellick Union, vice Clark, resigned.

NIXON, G. E. P., L.R.C.S.I., L.A.H.D., L.M.R.C.S.I., has been appointed Medical Officer and Public Vaccinator for the Shrivenham District of the Faringdon Union.

PRIEST, A., L.R.C.P.Ed., M.R.C.S., L.S.A.Lond., has been reappointed Medical Officer of Health for Waltham Holy Cross Urban Sanitary District.

SHAPLEY, F., M.R.C.S., L.S.A.Lond., has been appointed Assistant Medical Officer to the Glamorgan County Lunatic Asylum, Bridgend.

THOMSON, D., M.D., C.M.Glas., has been appointed Medical Officer for the Barton District of the Luton Union.

TURTON, J., M.R.C.S., L.S.A.Lond., has been appointed Medical Officer and Public Vaccinator for the Heckmondwike District of the Dewsbury Union.

WADE, A. L., M.D.Dub., L.R.C.S.I., Senior Assistant Medical Officer Kent County Asylum, Barming-heath, near Maidstone, has been appointed Superintendent of the Somerset and Bath Lunatic Asylum, Wells.

WIGNER, Mr. G. M., has been reappointed Public Analyst for the Greenwich District until June 8th, 1882.

WILSON, J., M.D.Aber., L.R.C.S.Ed., has been reappointed Medical Officer for the parish of Old Meldrum, Aberdeenshire.

Births, Marriages, and Deaths.

BIRTHS.

ALLEN.—On the 4th inst., at Wellington-square, Hastings, the wife of Dr. Allen, of a daughter.

BASHAM.—On the 30th ult., at 70, St. George's-road, the wife of William Richard Basham, M.R.C.S., of a son.

BREWER.—On the 9th inst., at 201, Queen's-road, Dalston, E., the wife of A. Hampton Brewer, of a son,

BURROUGHS.—On the 1st inst., at Maison Ginet, St. Etienne, France, the wife of Hastings W. Burroughs, M.R.C.S., of a son.

CHAUMONT.—On the 5th inst., at Woolston-lawn, Southampton, the wife of Professor F. de Chaumont, M.D., F.R.S., of a son

GREENWOOD.—On the 8th inst., at 178, Cold Harbour-lane, Camberwell, the wife of A. Greenwood, L.R.C.P.Lond., of a daughter.

SWINTON.—On the 3rd inst., at 25, Waterloo-place, Leamington, the wife of Thomas S. Swinton, M.R.C.S., of a daughter.

MARRIAGES.

DALZEL—NASH.—On the 2nd inst., at St. Andrew's, Hove, by the Rev. Wm. H. Walrond, Prebendary of Wells and brother-in-law of the bride, William Frederick Blyth Dalzel, M.D., Surgeon-Major late Bengal Army, to Mary Ann, daughter of the late Thomas Nash, Esq.

HURLEY—WINTER.—On the 4th inst., at SS. Peter and Paul's, Teddington, by the Rev. W. Grice, Rector of Tothill, uncle of the bride, assisted by the Rev. B. J. Warren, Incumbent, James Hurley, Esq., M.D., to Harriette Emily, second daughter of the late Samuel Winter, Esq., R.N., and granddaughter of the late Silas Winter, Esq., of Court House, Newton Ferrers, Devon.

MACNAMARA—DOORLY.—On June 27th, at the Cathedral, Port of Spain, Trinidad, W.I., Rawdon Macnamara, Esq., Assistant Colonial Surgeon, to Annie Jane, second daughter of the late Major M. Doorly, Sierra Leone.

NUTTALL—CORLASS.—At Greenshaw-street Chapel, Preston, on the 10th inst., by the Rev. J. Lambert, assisted by the Rev. J. R. Nuttall, of Sunderland, Ratcliffe Nuttall, M.R.C.S.E., Bradford, to Mary, the third daughter of the late John Corlass, Preston.

SHERA—WILD.—On the 3rd inst., at the Parish Church, Sheffield, by the Rev. Canon Blakeney, D.D., Vicar of Sheffield and Rural Dean, Henry Arthur Shera, M.R.C.S., only son of Henry M. Shera, LL.D., to Fanny Louisa, second daughter of William Wild, Manager of the Sheffield and Rotherham Bank, Sheffield.

SUCKLING—JEROME.—On the 3rd inst., at the Parish Church, Sutton Coldfield, Warwickshire, by the Rev. W. R. Riland Bedford (Rector), Cornelius William Suckling, M.B.Lond., of Queen's College, Birmingham, to Anna Maria, eldest daughter of the late John S. Jerome, Esq., of Holland House, Sutton Coldfield.

WHITTLE—DENIS DE VITRÉ.—On the 28th inst., at St. Nicholas' Church, Brighton, by the Rev. George Denis de Vitré, cousin of the bride, assisted by the Rev. John Julius Hannah, Vicar, and the Rev. F. L. Mears, Curate of All Saints', Brighton, Ed. Geo. Whittle, M.B.Lond., F.R.C.S.Eng., to Elizabeth (Lillie), daughter of the late Major Denis de Vitré, Bombay Fusiliers, and adopted daughter of the late Edward Denis de Vitré, Esq., M.D., Lancaster.

DEATHS.

BURNHAM.—On June 14th, Dr. George Burnham of Peterborough Canada, aged 67.

CROSSE.—On the 2nd inst., at Maida-hill, W., Thomas Henry Crosse, Esq., M.R.C.S.Eng., in his 75th year, eldest son of the late Lieut.-Colonel Joshua Crosse, K.S.F., formerly of H.M. 36th Regiment, and of Ovals St. Crosse, Lyonshall, Herefordshire.

JENNINGS.—On the 10th inst., at Market-street, Wakefield, Frederick Cook Jennings, M.R.C.S., L.S.A.Lond.

KELLY.—On the 2nd inst., at 49, The Gardens, Peckham-rye, Surgeon-Major John Price Kelly, Retired List Bengal Army, aged 61.

WILLIS.—On the 4th inst., at 16, St. John's-terrace, Hove, Thomas Willis, M.D. (Cantab), member of the Royal College of Physicians, aged 77.

N.B.—*A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths*

Notes, Short Comments, and Answers to Correspondents.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Local papers containing reports or news-paragraphs should be marked.

Letters, whether intended for publication or private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

Lectures, original articles, and reports should be written on one side only of the paper.

We cannot prescribe, or recommend practitioners.

All communications relating to the editorial business of the journal must be addressed "To the Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *to be addressed "To the Publisher."*

SUDDEN CHANGE OF COLOUR IN THE HAIR.

DR. PRENTISS relates in the *Philadelphia Medical Times* a case in which a remarkable change in the colour of the hair took place in a patient suffering from cystitis and pyelitis. Other symptoms than those arising from the bladder and kidneys were those of alternating constipation and diarrhœa, obstinate vomiting, headache, and sleeplessness. For seven days not a drop of urine was voided, and for ten weeks it did not average more than two ounces daily. The dysuria, however, was ultimately relieved by the use of pilocarpin, hypodermically, in gradually increasing doses until the amount of two centigrammes was reached. At the termination of the treatment of the illness, which appears in all to have lasted from January, 1880, to March, 1881, the colour of the hair of the patient had changed from a light blonde with a yellow tinge to almost a pure black. The growth of the hair moreover became more profuse. The employment of the pilocarpin was commenced on December 16th, 1880, and the hair was first observed to be undergoing a change of hue on the 28th of the same month, so that the author considers himself justified in referring the phenomenon to the use of the drug.

TWO PLACENTÆ TO ONE CHILD.

DR. PHILIP FOSTER, of Leeds, describes the occurrence of the above phenomenon, as follows:—The placentæ were quite distinct, and of the usual shape, but only about half the usual size. The umbilical cord, which was single, bifurcated about ten inches from the placentæ, a division going to the centre of each. One of the placentæ had undergone considerable degenerative change, which may perhaps account for the existence of the second. The child, although small, was healthy, and, with the above exception, there was not anything unusual.

Subscriber.—We cannot give an opinion on the questions put by our correspondent.

EXTREME TOLERATION OF OPIUM IN A CHILD.

To the Editor of THE LANCET.

SIR,—Mr. Foster's account in your last issue of a child who had taken with impunity two hundred homœopathic granules of belladonna and aconite reminds me of a somewhat similar accident related by my father, and which occurred in his practice many years ago. He had prescribed for a patient a small quantity of one-grain opium pills, and was subsequently informed by the alarmed parents that their young hopeful, a boy of some five summers, had surreptitiously got possession of the box, and unmistakably swallowed its entire contents. The little fellow exhibited no special symptoms, and on being interrogated expressed himself in his usual health. When it is considered how very susceptible children are to the toxic influence of this potent medicine, its extreme toleration in this instance is certainly remarkable, and deserves at least a passing notice.—I am, Sir, yours obediently,

Park-place, Leeds, August 3rd, 1881. CLARENCE FOSTER.

ACUTE INTESTINAL OBSTRUCTION FROM IMPACTED GALL-STONE.

To the Editor of THE LANCET.

SIR,—Reading the most interesting account of the case under the care o Dr. John Walters and Mr. W. A. Berridge in THE LANCET, July 30th, reminds me of a very similar one under my care in January of last year. It was kindly brought before the Medical Society by Dr. de Havilland Hall, on March 22nd, 1880, and is reported in THE LANCET, April 3rd, 1880. I am, Sir, your obedient servant,

Oxford House, Abbey-road, N.W., FRED. A. HILL, M.D.
August 3rd, 1881.

COLLAPSIBLE HATS AT THE CONGRESS.

ONE little matter, of small moment in itself, but not unimportant to personal comfort, which has been forced upon our notice at the recent Congress, has been the great convenience of the collapsible hats. Those members who had the moral courage to wear their opera hats by day must have enjoyed immensely the freedom not only from the burden, but the worry of carrying a stiff and large head-covering, which was in momentary danger of being crushed. Many of the foreign members set a good example, which we were glad to observe was followed by a fair sprinkling of the English. Could not the collapsing principle be applied to a special kind of silk hat? If so, the article would soon be in general wear.

TREATMENT OF NIGHT-SWEATS BY COTO.

IN the *Canada Lancet* for July, Dr. Stewart, of Brucefield, Ontario, recommends the fluid extract of coto as a remedy for night-sweats in incipient phthisis. He had given the drug in twenty-two cases, and in sixteen the arrest of the perspiration was prompt and persistent. In four cases the symptom, though controlled for a time, soon returned. In the remaining two cases no effect was produced; one of these, however, was a case of rapid phthisis, accompanied by rapid pharyngeal irritation.

"THE NOTIFICATION OF DISEASES."

To the Editor of THE LANCET.

SIR,—I notice in your last week's issue a "cutting" from the *Local Government Chronicle* in reference to the heading above. The action of the "Dorking Local Board," in the payment of a fee of one shilling to any medical practitioner who furnishes early notice of any of the seven principal zymotic diseases, has been a rule of the Belper Rural Sanitary Authority for a period of three years, and notification of the fact given to all the practitioners of the district, but during the whole of that period not more than two or three notices have been given to the medical officers of health, and these by one of the union medical officers.

The fact is the profession here have made no secret that they refuse to take a shilling fee, and so do not send the information. At the beginning of the present year a discussion arose out of the above facts, and as the authority did not seem to be willing to give a fee of 2s. 6d. (which I believe would answer the purpose), I suggested a trial of a shilling gratuity being given to any person who gave information to the medical officer of health, and this was agreed to.

The method is this: any person who gives notice by letter or verbally receives one shilling, the officer receiving a receipt that the money has been paid, and at the end of the quarter presenting it with his account as a voucher. So far there has not been much necessity for the rule to be acted upon, as systematic inspection is made throughout the whole of the thirty-two parishes of the authority by two medical officers of health and one sanitary inspector. Their reports are monthly, and they become so thoroughly acquainted with their districts by their constant visits that they gather the information for themselves in the majority of the cases which occur.—I am, Sir, your obedient servant,

EDWARD GAYLOR,
Medical Officer of Health, Belper Rural Sanitary Authority.

The Limes, Belper, July 23rd, 1881.

Mr. Fred. S. Alford (Hampstead).—No doubt the subscription will be at once returned.

Mr. W. Campbell.—We have been unable to find room for the communication, and do not undertake to return unused MS.

H. L. should take the advice of a qualified practitioner.

Dr. Colthurst (Portsmouth).—The paper has not been received.

"POISONOUS SCENTS."

To the Editor of THE LANCET.

SIR,—My attention having been drawn lately to a letter from Mr. Bloxam with the above heading, which appeared in your columns about a fortnight since, you will perhaps allow me to offer a few practical remarks on the subject.

In the first place, alcoholic scents, even of the best quality, are not prepared nor recommended to be applied pure to the skin; they are only used in that state to impregnate the handkerchief, and when required for toilet purposes they require to be diluted with a quantity of water.

As regards those scent sprinklers or leaden bottles, as Mr. Bloxam calls them, all respectable perfumers fill them generally, when wanted, as *rafraîchisseurs*, with non-alcoholic perfumed waters distilled from roses, orange flowers, &c., and these can be thrown in the face or even in the eyes without causing any pain or inflicting the slightest injury. From the symptoms of the case described, however, it is to be presumed that the poor child was the victim of one of those cheap, trashy things which are hawked in such quantities round the Crystal Palace and other places, and its being labelled "Heliotrope," makes me suppose it was scented with nitro-benzine, which would cause irritation. As the police cannot probably interfere with such iniquitous trading, the public must protect themselves against such mishaps by seeing that such articles bear the name of some known maker before they buy them.

I remain, Sir, your obedient servant,

Strand, W.C., August 9th, 1881. EUGÈNE RIMMEL.

AN IMPROVED FOOT WARMER.

MR. G. F. NAYLOR, M.R.C.S., of Wakefield, has submitted to our notice a solid foot-warmer, which appears to be an improvement on the ordinary hot-water bottle commonly employed to remedy the discomfort occasioned by cold feet. The device, which has been made for Mr. Naylor by Robinson and Sons, Stoneware Pottery, Leeds, consists of a solid block of earthenware, having a loop at one end of the same material. It is heated by being placed for two or three hours in a slow oven; wrapped in flannel, it cools very gradually. Of course the trouble and risk attending the filling of bottles are here avoided, and the invention appears likely to be useful in the sick-room and in the bedchamber of the delicate in severe weather.

THE LONDON TEMPERANCE HOSPITAL.

Mr. Bernard F. Hartzhence asks us to correct a misstatement with respect to the locality and amount of accommodation afforded by the London Temperance Hospital. The institution is now situated in the Hampstead-road, and has fifty beds, but when the building is completed it will accommodate one hundred in-patients.

Mr. H. M. Barker should apply to Professor Liveing, Cambridge.

A Sufferer.—We know nothing of the remedy mentioned.

Mr. S. Butler ought not to have overlooked the note at the head of the paper in question.

MEDICAL REGISTRATION.

To the Editor of THE LANCET.

SIR,—The letter of Mr. Philip Foster in your issue of to-day prompts me to give you my experience of medical registration. I registered myself in July, 1868, paying the usual fee of £5. In the following year I entered the Indian Medical Service, and in due course went to India. Shortly after coming to England last year I saw an advertisement in your columns on the subject of the Medical Register, and put myself in communication with the registrar of the Medical Council, and I then found that, as in Mr. Foster's case, my name had been erased from the Register in consequence of my not answering a letter which I never received.

It is true that the Medical Council had not the effrontery to demand a fine of 5s. from me as a penalty for this neglect on my part or for the privilege of having my name replaced on the Register, but I was informed that, on my filling up a certain form which was sent to me and procuring a certificate to the effect that I am the same person as the one "whose name formerly stood in the Register with the following address and qualifications" (a space is here left blank in the form), my name would be submitted for restoration to the Medical Register at the next meeting of the Executive Committee of the General Medical Council.

In the letter giving me this information is quoted a section of the Medical Act of 1858, in which I learn, among some very slipshod English, that it is "the duty of registrars to keep their registers correct," and to enable them to do so it shall be lawful for them to write a letter to any registered person to inquire whether he has changed his residence, and if no answer shall be returned within six months it shall be lawful (not it shall be incumbent on the registrar) to erase the name of such person from the Register.

The Act, you will see, Sir, does not preclude the registrar from searching in the Medical Directory (a valuable publication, issued by a private firm) for the name of a registered person who has neglected to answer a letter, or from consulting the official lists of medical officers of the army and navy and Indian service, or indeed from resorting to any such method of inquiry as common-sense might direct, although it distinctly lays down that they (the registrars) shall keep their Registers correct. This duty the Legislature, with a sense of justice which does them much credit, does not impose on those unfortunate beings termed registered persons who have erroneously assumed that having put themselves to some inconvenience and paid £5 for a privilege which has subsequently never been of the smallest advantage to them, they might safely leave the care of the Register to the officers upon whom the duty of amendment and correction has been imposed under the Act. Registered persons would, I have little doubt, be always ready, and indeed glad, to afford registrars every assistance in the performance of this duty were only communications on the subject to reach them, but I think it must be known that very few registered persons purchase copies of the Register, and hence they are unlikely to learn of the disappearance of their names from that volume. In my own case I do not think I have ever seen a copy containing my name, and I am not sure that I recollect the address under which I registered. It is not improbable that many medical officers in the public services may have been served like me, and had their names erased from the Register. This perhaps does not do us much harm, but the correctness of the Register suffers.

If registrars will allow me, I think I can indicate a means whereby the correctness of the Register, as far as regards registered persons in the public service, may be ensured. When the Medical Register is revised, application should be made to the Admiralty, the War Office, and the Indian Office for copies of the latest published lists of medical officers serving in the navy, the army, and on the Indian establishments. This, it appears to me, would be more likely to enable the registrar to keep his Register correct than the cumbrous and inefficient practice suggested in the Act, and would be far less troublesome. I do not know whether it is the practice to write a letter to every person on the Register to inquire about his movements. If so it must be a stupendous labour, and, I cannot help thinking, a very useless one.

Mr. Foster's indignation at the removal of his name from the Register is quite natural. It has been assumed that a name of a living registered person was only removable on proof of misconduct produced before the Council, but here are cases of removal occurring of a most arbitrary, not to say capricious, character. It is a subject which demands urgently the attention of the Council.—I am, Sir, your obedient servant,

Redbridge, August 6th, 1881. E. B. RUTTLEDGE.

To the Editor of THE LANCET.

SIR,—I can further illustrate the careless manner in which registration duties are carried on at Oxford by my own case. I registered in 1879, and received the usual copy of the registration with my name and address as I had written them. In 1880, on turning over the list casually in the Medical Register, I was astonished to find that to my correct name was added the address (in quite another part of London) of somebody else, my address being placed to him. I wrote to the registrar, pointing this out, and after several letters had passed I was promised that in the next year's list the mistake should be corrected. However, on examining the book published in 1881 I find that, in spite of all my correspondence, the officials have placed an incorrect number to my address. Considering that all we get for our registration-fee is a copy of the annual Register, value 6s., and also remembering what severe penalties are dealt out to those who fail to send their latest address, I think we are entitled to claim that our original registration should be correctly printed. The publishers of the Medical Directory send out every year a slip proof of our names, appointments and qualifications to every practitioner, so that, if incorrectly designated, we can alter it at once. We can hardly expect that this energetic proceeding on the part of a mercantile firm should be copied by such a professional body as the General Medical Council in every case, but at least it might be done in case of doubt. I may mention that on going to the office a short time since to register additional qualifications, the clerk to whom I made my complaint seemed to think it was a very simple affair, and only a printer's error. That this is not the case is proved by the fact that the number, 16, placed against my address was the number that originally belonged to the gentleman whose residence the registrar kindly placed at my disposal in the first incorrect registration.—I remain, Sir, yours faithfully,

August 8th, 1881. M. B.

"MESSRS. SCHIEFFELIN AND CO.'S EXHIBITS."

To the Editor of THE LANCET.

SIR,—In calling the attention of your readers to the fact that their speciality is not sugar-coated pills, Messrs. W. H. Schieffelin and Co. have done a service for which our thanks are due to them, as well as to yourself for having inserted their communication. As however their letter states further (1) that their "speciality is soluble-coated pills," and (2) that their "preparations are diametrically opposed to sugar-coated pills," it follows as a logical sequence that sugar-coated pills must be insoluble. If we rightly understand the meaning of the word diametrically (*διάμετρος*), it is a superlative of force, and the argument in which it is employed seeks to prove too much. As, further, it is well known that sugar as a coating is perfectly soluble, the argument, as stated, proves nothing. With the one closing observation that sugar is a simple and not a secret pill coating, we are content to leave the question of comparative solubility to the test of experience. Trusting you will give these lines a place in your columns, we are, Sir, yours faithfully,

London, August 8th, 1881. F. NEWBERY & SONS.

SUNSTROKE.

To the Editor of THE LANCET.

SIR,—For seven years of residence in Central China, upon the banks of the Yangtsekiang, which annually overflows its banks, I found nothing so protective against sunstroke as ten grains of sulphate of quinine suspended in a wineglassful of sherry, and taken before going out at midday, when required to brave the sun-heat, which is oftener above than below Calcutta temperature. I have tried this plan in so many cases that I feel certain that quinine is as prophylactic against sunstroke as against malarial fever. It was while endeavouring to neutralise the miasma which causes the latter that I noticed how completely I felt braced against the effects of the sun-heat. I should be inclined to dissolve the quinine in hydrobromic acid instead of the sherry, as there are cases of wine-stroke and brandy-stroke, as well as draught-beer-stroke. It is a pity that brewers add so much spirit to draught beer for export in order, as I suppose, to "fortify" it.

I am, Sir, yours truly,

Shepton Mallet, August 9th, 1881. F. PORTER SMITH, F.R.G.S.

SUNBURN.

To the Editor of THE LANCET.

SIR,—I have not had access quite recently to your journal, but I remember that a letter on the above subject appeared in your number for September 20th, 1879 (p. 448), and remained a very long time unanswered. I have just laid my hands on a note which I made at the time alluded to, and if you think it worth publishing or sending to "L.R.C.S.I.," I will condense it to a very few words. Every line of "L.R.C.S.I.'s" letter applies to a case of my own, observed for five years. I have not been called to any acute attack recently, however, and know that my patient was pleased with the effects of a mixture containing corrosive sublimate, iodide of potassium, and arsenic, and that he regularly continues the use of German tar soap.—I am, Sir, yours, &c.,

BETTER LATE THAN NEVER.

Cape of Good Hope, May 24th, 1881.

PROVIDENT DISPENSARIES.

WE are compelled to defer the publication of several pertinent letters on this subject, as well as some comments bearing upon them and the whole question.

PROFESSOR VIRCHOW'S ADDRESS.

THE translation of Professor Virchow's Address, which was published in THE LANCET of August 6th, was corrected specially for this journal by the distinguished author, and is the only authorised English edition.

THE pressure on our space caused by the reports of addresses and of the work of the sections at the International Medical Congress has necessitated the omission of original articles, reviews of books, letters, and other matters of general and professional interest.

Student.—No foreign medical degree is registrable at present.

COMMUNICATIONS, LETTERS, &c., have been received from—Mr. Davis, Littleton Drew; Dr. D. Page, Kendal; Mr. E. Prideaux, Wellington; Mr. Gay, London; Messrs. Lehmann and Co.; Dr. Dennen, Holyhead; Mr. Judge, London; Mr. S. Smith; Dr. Ruttledge, Redbridge; Dr. Colthurst; Mr. Jakins, Ballarat; Dr. Althaus, London; Mr. Reid, Aberdeen; Mr. Bateman, London; Mr. Armstrong, Newcastle-on-Tyne; Mr. Cotterell, Bicester; Mr. Harris, London; Mr. Norman, Cheltenham; Mr. Morris, Swansea; Dr. Pavy, London; Mr. Lilly; Messrs. Orridge and Co., London; Mrs. Smith, Plymouth; Mr. Ricks, Bradford; Mr. Corbishly, Macclesfield; Mr. Athington, Gloucester; Mr. Stilliard, Birmingham; Dr. Kendrick, Glasgow; Messrs. Wright and Co., Birmingham; Messrs. Butterfield, Northampton; Dr. Cook, Manningtree; Dr. Rogers-Tillson; Dr. Buzzard, London; Dr. Blumer, New York; Mr. J. S. Wood, London; Messrs. Newbery and Sons, London; Mr. A. B. R. Myers, London; Mr. Clouting, Thetford; Mr. Gramshaw, Lowestoft; Mr. J. E. Adams, London; Mr. Porter Smith, Shepton Mallet; Dr. French, Manchester; Mr. F. S. Alford, London; Mr. Walker, Spondon; Mr. S. Clarkson, Paris; Dr. Blackley, Old Trafford; Dr. E. Fournié, London; Mr. J. K. Thornton, London; Mr. Phillips; Mr. Kerbey, London; Frank; S. J. C.; T. C., Cramlin; Facomnia; W. M.; A Sufferer; Medical; &c., &c.

LETTERS, *each with enclosure*, are also acknowledged from—Mr. Wilson, Huddersfield; Mr. F. A. White, London; Mr. Holt, Stockport; Mr. Austin, Luton; Mr. Lethbridge; Mr. Anderson, Atroghill; Messrs. Lee and Martin, Birmingham; Mr. Brown, Westgate-on-Sea; Mr. Price, Candia; Mr. Workman, Reading; Dr. Laffan, Cashel; Mr. Greenwood, Camberwell; Mr. Whittle, Lowswater; Mr. Sims, Sheffield; Messrs. Robson and Son, London; Messrs. Mottershead and Co., Manchester; Messrs. Beal and Co., Brighton; Mr. Stone, Haxey; Mr. Horne, York; Mr. Hall, Salford; Mr. Hirst, Morbey; Dr. Dowse, London; Mr. Leatham, Doncaster; Mr. Unsworth, Liverpool; Mr. Williamson, Penrith; Mr. Breffit and Co., London; Mr. Smith, Winchester; Mr. Thomas, Edinburgh; Mr. Edgington, Tenbury; Mr. Nicoll, Dundee; Mr. Lilly, Bridgwater; Mr. East, London; Mr. Ellis, Brighton; Mr. Bonthron, London; Messrs. Horne and Son, Croydon; Mr. Norman, Cheltenham; Messrs. Tonks, London; Mr. Beasley, Rowley Regis; Mr. Buchan, Glasgow; Mr. Wilson, Liverpool; Dr. Diver, Kenley; Mr. Webb, York; Mr. Moxish, Liverpool; F.R.C.S., Church; B. N., London; M.D., Southsea; Delta, Edinburgh; H. M. B., Rochester; G. S. B., Edinburgh; Alpha, London; Spes, Much Wenlock; Medicus, Coleford; B. O. J., Bermondsey; X.; M.D., Chester; Alpha, Sheffield; J. L., Plumstead; Beta, High Barnet; R. M. N. R.; T., New North road; Semper; A. B. C., Paddington; Student; W. R., Bristol; W. G., Old Charlton; Medicus, Aldgate; Delta, Cubitt-town; M.R.C.S.; M.D., London; &c., &c.

The Oracle, Kensington News, Marylebone Mercury, Gazeta Lekarska, New York Times, &c., have been received.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET OFFICE, August 11th, 1881.

Date.	Barometer reduced to Sea Level, and 32° F.	Direction of Wind.	Dry Bulb	Wet Bulb	Solar Radia in Vacuo	Max. Temp Shade	Min. Temp	Rain fall.	Remarks at 8.30 A.M.
Aug. 5	30·08	W.	68	62	113	85	54	..	Hazy
,, 6	30·12	W.	63	58	108	75	56	..	Fine
,, 7	30·23	S.W.	68	60	100	75	51	..	Cloudy
,, 8	29·90	S.W.	65	60	107	77	54	..	Hazy
,, 9	29·36	W.	59	54	102	72	52	·49	Cloudy
,, 10	29·34	W.	60	56	79	64	54	..	Overcast
,, 11	30·07	N.W.	59	53	99	78	49	..	Cloudy

Medical Diary for the ensuing Week.

Monday, Aug. 15.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, 10½ A.M. each day, and at the same hour.
ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1½ P.M. each day, and at the same hour.
METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.
ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.
ST. MARK'S HOSPITAL.—Operations, 2 P.M.; on Tuesday, 9 A.M.
UNIVERSITY COLLEGE HOSPITAL.—Ophthalmic Department.—2 P.M., and on Tuesday, Thursday, and Friday, at the same hour.

Tuesday, Aug. 16.

GUY'S HOSPITAL.—Operations, 1½ P.M., and on Friday at the same hour.
WESTMINSTER HOSPITAL.—Operations, 2 P.M.
WEST LONDON HOSPITAL.—Operations, 3 P.M.

Wednesday, Aug. 17.

NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 10 A.M.
MIDDLESEX HOSPITAL.—Operations, 1 P.M.
ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1½ P.M., and on Saturday at the same hour.
ST. THOMAS'S HOSPITAL.—Operations, 1½ P.M., and on Saturday at the same hour.
ST. MARY'S HOSPITAL.—Operations, 1½ P.M.
KING'S COLLEGE HOSPITAL.—Operations, 2 P.M., and on Saturday at 1 P.M.
LONDON HOSPITAL.—Operations, 2 P.M., and on Thursday and Saturday at the same hour.
GREAT NORTHERN HOSPITAL.—Operations, 2 P.M.
UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M., and on Saturday at the same hour.—Skin Department.—1.45 P.M., and on Saturday at 9.15 A.M.
SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations, 2½ P.M.

Thursday, Aug. 18.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M.
ST. BARTHOLOMEW'S HOSPITAL.—1½ P.M. Surgical Consultations.
CHARING-CROSS HOSPITAL.—Operations, 2 P.M.
CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M., and on Friday at the same hour.
HOSPITAL FOR WOMEN, SOHO-SQUARE.—Operations, 2 P.M.
NORTH-WEST LONDON HOSPITAL.—Operations, 2½ P.M.

Friday, Aug. 19.

ST. GEORGE'S HOSPITAL.—Ophthalmic Operations, 1½ P.M.
ST. THOMAS'S HOSPITAL.—Ophthalmic Operations, 2 P.M.
ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.

Saturday, Aug. 20.

ROYAL FREE HOSPITAL.—Operations, 2 P.M.

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